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PRESENTED BY

DR. DUDLEY P. ALLEN
AND DR. C. A. HAMANN

MAY 18TH, 1900

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Yours truly
Ira A. Collamore

TRANSACTIONS

OF THE

123.43

FORTY-SEVENTH ANNUAL MEETING

OF THE

OHIO STATE MEDICAL SOCIETY

HELD AT

CINCINNATI,

MAY 4th, 5th and 6th, 1892.

Printed and Published by Order of the Society.

CINCINNATI:
THE CINCINNATI LANCET PRESS,
1892.

OFFICERS FOR 1892-93.

DUDLEY P. ALLEN, M.D., Cleveland . . . *President.*
N. P. DANDRIDGE, M.D., Cincinnati . . *Vice-President.*
E. C. BRUSH, M.D., Zanesville . . . *Vice-President.*
C. A. KIRKLEY, M.D., Toledo . . . . *Vice-President.*
W. A. DIXON, M.D., Ripley . . . . *Vice-President.*
T. V. FITZPATRICK, M.D., Cincinnati . . . . *Secretary.*
J. A. SPENCE, M.D., Crestline . . *Assistant Secretary.*
G. I. CULLEN, M.D., Cincinnati . *Treasurer and Librarian.*

STANDING COMMITTEES.

Finance.

DUDLEY P. ALLEN, M.D., W. S. HOUGH, M.D.,
E. LINNETT, M.D., H. J. HERRICK, M.D.,
P. P. POMERINE, M.D.

Ethics.

W. J. SCOTT, M.D., H. S. USPON, M.D,
H. D. HINKLEY, M.D., S. S. THORN, M.D.,
C. L. VAN PELT, M.D.

Publication.

A. R. BAKER, M.D., J. F. BALDWIN, M.D.,
C. A. L. REED, M.D., E. S. McKEE, M.D.,
L. S. COLTER, M.D.,
DUDLEY P. ALLEN, M.D., *ex-off.*,
T. V. FITZPATRICK, M.D., *ex-off.*

Legislation.

D. N. KINSMAN, M.D., S. LOVING, M.D.,
S. S. THORN, M.D., D. J. SNYDER, M.D.,
C. E. BEARDSLEY, M.D.

Admissions.

C. P. LANDON, M.D., D. J. MERRIMAN, M.D.,
C. F. CLARK, M.D., A. F. HOUSE, M.D.,
A. R. BAKER, M.D.

CONSTITUTION AND BY-LAWS.

The following Constitution and By-Laws as revised by the Committee on Revision of the Constitution, were adopted at the meeting of 1892, and said committee continued with power to still further revise and report at the next annual meeting:

ARTICLE I.

TITLE OF THE ASSOCIATION.

The name of this association shall be "THE OHIO STATE MEDICAL SOCIETY."

ARTICLE II.

OBJECTS OF THE SOCIETY.

The objects of this Society shall be the advancement of medical and surgical knowledge; the elevation of professional character; the protection of the professional interests of its members; the extension of the bounds of the medical sciences; and the promotion of all measures adapted to the relief of the suffering, the improvement of the health, and the protection of the lives of the community.

ARTICLE III.

MEMBERS.

Section 1. The Society shall consist of delegates, active permanent members, permanent members, and honorary members.

ACTIVE PERMANENT MEMBERS.

Sec. 2. (a) Each member of the Ohio State Medical Society in good standing prior to May 7, 1892, shall be an

active permanent member, with all the rights and privileges, including copy of the annual Transactions of the Society, so long as his annual dues are paid.

PERMANENT MEMBERS.

Sec. 2. (b) Active members in good standing of all local and district societies which have adopted the code of ethics of the American Medical Association shall be permanent members of the Ohio State Medical Society, entitled to all the rights and privileges of said Society (including copy of annual Transactions) except the right to vote in business sessions.

HONORARY MEMBERS.

Sec. 2. (c) This Society may elect eminent physicians and surgeons as honorary members, provided the members elected in any one year shall not exceed three.

STATE OR FOREIGN SOCIETIES.

Sec. 3. Delegates from other States or foreign countries, before admission to a seat in this Society, shall be required to produce a certificate, signed by the president or secretary of their respective society or association.

Sec. 4. Delegates from local medical societies of this State, before admission to a seat in this Society, shall be required to produce a certificate, signed by the president or secretary of their local society, showing that they are regularly appointed delegates from said society, and shall file said certificate with the Chairman of the Committee of Local Medical Societies and Delegates.

DUES.

Sec. 5. (a) The dues shall be one dollar per annum.

RIGHTS OF PERMANENT MEMBERS.

Sec. 5. (b) Permanent members removing from this State shall be entitled to all the rights and privileges of members so long as they are in good standing professionally in the State, Territory or country in which they reside, and pay their annual dues.

Sec. 5. (c) Any member who fails to pay his dues for two years shall forfeit his membership and shall not be reinstated until all arrearages are paid.

RIGHTS AND PRIVILEGES.

Sec. 6. Active Permanent, Permanent, and Honorary members and visiting members of the regular profession shall have the right to seats in all the sessions, and the privilege of presenting papers and of taking part in the discussions.

Sec. 7. The names of all Active Permanent, Permanent, and Honorary members, and the list of delegates for each year, shall be published in the annual Transactions.

LIFE MEMBERS.

Sec. 8. Any member in good standing whose membership has been continued for a period of twenty-five years, and who has paid his dues annually during this period, shall be declared an active permanent member, and shall not be required to pay annual dues to the State Society thereafter.

ARTICLE IV.

REGISTRATION OF MEMBERS.

Section 1. The secretary of each county, district or local medical society, not less than one month preceding each annual meeting of the State Society, shall make a full and correct catalogue, with postoffice address of its officers and members in good standing at that time, together with a certified list of its delegates, and transmit the same at once to the secretary of the State Medical Society. If the name of a member is omitted from this catalogue, and was contained in the last preceding catalogue, the secretary must explain the omission by stating whether the member whose name is omitted is dead, has withdrawn, has removed, been expelled, or suspended. Any county, district or local society that fails to comply with this requirement shall be held in contempt, and none of its members shall be allowed to participate in the business of this Society, or be entitled to any of

its rights or privileges, until such society shall have purged itself of the contempt.

Sec. 2: In the case of the death of any member of said county, district or local medical society, it shall be the duty of the secretary of each society to transmit to the secretary of this Society a suitable obituary notice for publication.

ARTICLE V.

OFFICERS.

Section 1. The officers of this Society shall be a President, four Vice-Presidents, Secretary, Assistant Secretary, and a Treasurer and Librarian, with five standing committees, as designated in Articles VII and VIII.

Sec. 2. The officers of this Society shall be elected by ballot, a majority of all the active permanent members and delegates present being necessary to a choice. The officers so elected shall enter upon their duties at the close of each annual meeting at which they were elected, and shall serve for one year, or until their successors are elected, excepting those those who are elected to standing committees, who shall serve for five years each.

VACANCY OF OFFICE.

Sec. 3. All vacancies occurring among the officers of this Society during the interim of the annual meetings shall be filled by appointment of the president.

ARTICLE VI.

DUTIES OF OFFICERS.

Section 1. The President shall preside over the meetings, preserve order, call special meetings when requested so to do by a written request of at least twenty-five (25) active permanent members or delegates, deliver an annual address at the regular annual meeting, and perform such other duties as custom and parliamentary usage may require.

Sec. 2. The Vice-Presidents shall assist the President in

the performance of his duties, and in his absence preside over the meetings in the order of their rank.

Sec. 3. The Secretary shall keep a correct minute of the proceedings of the Society, and prepare and furnish the same to the Committee on Publication for publication in the Transactions; notify committees, local societies and delegates of this Society to other societies or associations of their appointment; to take charge of all manuscripts, papers, etc., read at the various meetings and transfer the same to the Committee on Publication for publication; give due notice to all the members of the Society of the annual meetings, to whom he shall furnish a printed programme; conduct all business correspondence; give official notice to all local societies of resolutions, etc., passed by this Society that have reference to said societies, and also notify them of the time for making their reports to this Society, and perform all other duties which common usage of other corporate or organized bodies may require; for which service he shall receive a salary of at least $150.00 per annum.

Sec. 4. The Assistant Secretary shall assist the Secretary in the performance of his duties as the latter may require, and act for him in his absence, for which service he shall receive an annual salary of not less than $25.00, in addition to his traveling and hotel expenses.

Sec. 5. The Treasurer and Librarian shall receive all money due the Society, pay all bills and salaries when countersigned by the Secretary and President, keep a correct itemized account of all receipts and expenditures, and make a full report of the same at each annual meeting. He shall have charge of all the books, papers, manuscripts, etc. (except such papers as may belong to the Secretary), instruments, specimens, preparations, and other scientific property belonging to the Society, and keep a complete catalogue of the same, and report the condition of this department at each annual meeting. He shall give bond for

the faithful performance of his duties in the sum of twice the greatest amount of money belonging to the Society which may come in his possession at any one time, with at least the names of two responsible sureties on said bond, which bond shall be deposited with the Secretary. The Treasurer shall be paid a salary of at least $150.00 per annum.

Sec. 6. It shall be the duty of each officer to deliver all papers, records, books, funds and other property belonging to the Society to their successors when the latter shall enter upon the discharge of their respective duties.

ARTICLE VII.

COMMITTEES.

The committees of this Society shall be standing and temporary. Standing committees shall be those whose duties shall continue from year to year. They shall consist of five members each, whose term of membership shall be five years; one member of each of said committees shall be elected each year to fill the vacancy made by his predecessor. The standing committees shall be as follows: Committee on Local Medical Societies and Delegates, on Finance, on Ethics, on Publication, and on Medical Legislation. Temporary committees shall be appointed by the President for special purposes, whose functions shall cease when the duties for which they were appointed shall have been accomplished or by a special act of the Society. It shall be their duty when accepting a position on said temporary committees to perform the duties required of the same and make a report to the Society of their action.

ARTICLE VIII.

DUTIES OF COMMITTEES.

Section 1. The Committee on Local Medical Societies and Delegates shall examine and pass upon the qualifications of said local societies and their delegates. It shall be their

duty to report any irregularities of any local medical society or its delegates, or both, to this Society, with such recommendations as they may deem proper and for the interests of the Society for its action; and perform such other duties as may be required of them.

Sec. 2. The Committee on Finance shall examine into and report on all the monetary affairs of the Society; inspect and audit all bills and accounts of the Treasurer; determine the amount of the annual dues of members and have power to change the amount of the dues to meet the expenses of the Society, and perform such other duties as may be required of them.

Sec. 3. The Committee on Ethics shall examine and report for the action of the Society all cases of appeal from local societies, and such other matters as may be referred to them by the Society. If any local society or permanent member of this Society shall be charged in writing with the violation of any of the provisions of this Constitution and By-Laws, or with unprofessional conduct, a copy of such charges shall be furnished to said local society or permanent member by the Secretary and the accused cited to appear before the Committee on Ethics, who shall set a time and place for the hearing of said case, and after a full and impartial hearing of both sides of the case shall report to this Society the result of their investigations, with such recommendations as they may deem proper for the action of the Society. If, however, in the judgment of the Committee on Ethics, they may deem it wise and expedient to refer the matter back to the local society for adjudication, they shall have the power to do so; otherwise they shall report to this Society, who shall take action on their report, which action shall be final for at least a period of one year, at which time said case can be reopened by the unanimous consent of the Committee on Ethics.

Sec. 4. The Committee on Publication, of which the President and Secretary shall be members *ex-officio*, shall

examine all papers presented to the Society for publication, and shall have the power to reject any such papers as in their judgment they may think are not of sufficient interest to the Society to justify their publication. They shall have power to direct how and where and in what manner the publications of this Society shall be made.

Sec. 6. The Committee on Legislation shall watch the course of State and National legislation on medical and sanitary subjects, and take charge of such matters as shall be referred to them by the Society. All proposed legislation offered by any member of this Society, and all resolutions touching upon medical and sanitary legislation, shall be referred to this committee, who shall make a report thereof to this Society at each annual meeting. They shall also, at each annual meeting, report to this Society any laws relating to medical matters that have been passed within the year.

Sec. 7. Each standing committee shall keep regular minutes of their proceedings, and furnish an authenticated copy thereof to the Secretary of this Society.

Sec. 8. All resolutions and legislative business pertaining to the Society shall either be referred to the proper standing committee or to a special committee for consideration, and when so referred shall be acted upon by the Society after said committee has carefully investigated and reported their action and recommendations regarding such resolution to this Society.

Sec. 9. The President shall each year, at the close of the annual meeting, appoint a Committee of Arrangements, which shall be composed of members the majority of whom shall reside at the place where the next annual meeting is to be held, unless there are good and sufficient reasons for not doing so. This committee shall provide suitable rooms and accommodations for the next meeting, and, in all matters not otherwise provided for, superintend and protect the general interests of the Society.

The Secretary and Assistant Secretary shall be members *ex-officio* of this committee.

ARTICLE IX.

DELEGATES.

Section 1. This Society shall appoint not less than one delegate for every ten members to attend each annual meeting of the American Medical Association, and may appoint delegates in the same ratio to other medical associations, whose duty it shall be to report briefly in writing, through their chairman, which chairman shall be elected by ballot from among the delegates so appointed, such items of general interest as may have claimed the attention of the bodies to which they are respectively delegated.

ARTICLE X.

MEETINGS.

Section 1. All business must be transacted by active permanent members and delegates from affiliated societies.

Sec. 2. The meetings of this Society shall be held annually, and shall occur at such time and place as the Society may appoint. Call meetings may be had at any time on the written request of at least twenty-five active permanent members or delegates. Due notice of all meetings shall be given by the Secretary, and in case of a special meeting the object for calling said meeting shall be distinctly set forth in the notice, and no other business shall be transacted at said special or called meeting excepting that designated in the call for said meeting.

Sec. 3. Twenty-five active permanent members or delegates shall constitute a quorum for the transaction of business.

ARTICLE XI.

CODE OF ETHICS.

Section 1. This Society shall adopt as a part of its

Constitution the Code of Ethics of the American Medical Association.

ARTICLE XII.

AMENDMENTS.

All amendments to the Constitution shall be made in writing; and unless such amendment receives a majority of at least two-thirds of the qualified voters of this Society who are present at a regular annual meeting it shall not become a law, and in such event said amendment shall lie over until the next annual meeting, when it may be adopted by a majority of the qualified members present.

BY-LAWS.

ARTICLE I.

ORDER OF BUSINESS.

1. The President, or, in his absence, the ranking Vice-President, shall preside; or, in the absence of all these officers, a chairman shall be elected *pro tempore.*

2. Reading of minutes. Report of the Committee of Arrangements and standing committees (first day).

3. President's address (afternoon of second day).

4. Election of officers (afternoon of second day).

5. Selection of a place for the next meeting (afternoon of second day).

6. Business which requires early consideration.

7. Written communications on medical subjects (papers, addresses, etc.).

8. Oral communications.

9. New business.

10. Unfinished and miscellaneous business.

11. Adjournment.

ARTICLE II.

Three active permanent members or delegates may call for the ayes and nays.

ARTICLE III.

All questions of order not especially provided for shall be decided by Cushing's "Manual of Parliamentary Practice."

ARTICLE IV.

Section 1. No paper shall occupy over thirty pages of the Transactions.

Sec. 2. The reading of any paper shall not exceed twenty minutes without the consent of the Society.

Sec. 3. All addresses, papers and reports presented to this Society by its members shall be the property of the Society, and shall be referred without motion and without recommendation to the Committee on Publication; and it shall be considered a misdemeanor for the author of any such report, address or paper to permit the same to be published elsewhere except they give this Society proper credit with the same.

ARTICLE V.

Section 1. No speaker shall be allowed to speak a second time on the same subject without the consent of the Society.

Sec. 2. The time allowed each speaker shall not exceed ten minutes on any discussion except by a general consent of the Society.

ARTICLE VI.

Any of these By-Laws may be suspended at any time by a two-thirds vote of the qualified voters present at any annual meeting. All amendments to the same must be offered in writing; if said amendment receive a three-fourths vote of the permanent members present it shall be adopted, but otherwise it shall lie over until the next meeting, when it may be adopted by a majority vote of the qualified voters present.

OHIO STATE MEDICAL SOCIETY.

At the Seventeenth Annual Session of the Ohio State Medical Society, the following resolution was adopted:

Resolved, That the publication of any address, prize essay, or other paper, by this Society, is no evidence of its endorsement of the sentiments therein contained.

Forty-Seventh Annual Meeting

OF THE

OHIO STATE MEDICAL SOCIETY,

HELD AT

Cincinnati, May 4, 5, 6, 1892.

FIRST DAY'S PROCEEDINGS.

At 2 o'clock P. M., May 4, 1892, the Society was called to order by the President, Dr. George A. Collamore.

Prayer was offered by Dudley W. Rhodes, D.D.

The Chairman of the Committee of Arrangements, Dr. N. P. Dandridge, delivered the Address of Welcome.

SECRETARY'S REPORT.

The Secretary submitted the following report:

During the year a special effort was made to present an opportunity to every local and district society in the State not yet having done so to become affiliated with the State Society. The following societies availed themselves of this privilege, by giving assent to Article III, Section 10, of the Constitution (which was in vogue up to the date of this meeting), viz.: Academy of Medicine of Cincinnati, Ashtabula County, Brown County, Butler County, Champaign County, Cuyahoga County, Erie County, Fayette County, Greene County, Miami Valley, North Central and North-Western. There are still many societies that have not be-

come affiliated; some have declined, others are in an inactive state and have little interest in the affairs of their State Society.

The following is a complete list of affiliated local and district societies:

Academy of Medicine of Cincinnati.
Allen County Medical Society.
Ashtabula County Medical Society.
Bay City Medical Society.
Belmont County Medical Society.
Brown County Academy of Medicine.
Butler County Medical Society.
Champaign County Medical Society.
Central Ohio Medical Society.
Cincinnati Medical Society.
Clermont County Medical Society.
Cuyahoga County Medical Society.
Erie County Medical Society.
Fayette County Medical Society.
Greene County Medical Society.
Homestead Academy of Medicine.
Highland County Medical Society.
Lebanon Medical Society.
Manoning County Medical Seciety.
Marion County Medical Society.
Miami Valley Medical Society.
Montgomery County Medical Society.
North Central Ohio Medical Society.
North-Western Ohio Medical Society.
Piqua Medical Society.
Portage County Medical Society.
Preble County Medical Society.
Shelby County Medical Society.
Summitt County Medical Society.
Toledo Medical Society.
Tuscarawas County Medical Society.
Wayne County Medical Society.

But two societies during the year have fallen by the wayside—Preble County and Brown County. But, phœnix-like, out of the ashes of the old Brown County Medical Society the Brown County Academy of Medicine sprang into a very active existence.

The State Society hereby wishes to acknowledge the receipt of Transactions from the following States:

Alabama, Arkansas, California, Connecticutt, Dakota,

Georgia, Illinois, Indiana, Kansas, Kentucky, Louisiana, Maine, Maryland, Massachusetts, Michigan, Mississippi, Missouri, Montana, New Hampshire, New Jersey, New York, Nebraska, North Carolina, Oregon, Pennsylvania, Rhode Island, South Carolina, Tennessee, Texas, Vermont, Virginia, Washington, West Virginia, Wisconsin.

Respectfully submitted,

T. V. FITZPATRICK, *Secretary.*

On motion by Dr. R. Harvey Reed the President appointed a committee to revise the Constitution so as to make it harmonize with Article III, Section 10. The President appointed Drs. R. Harvey Reed, E. C. Brush and A. Rhu.

COMMITTEE ON CONSTITUTION AND BY-LAWS.

On motion the report of the Committee on Revision of the Constitution (see page 5) was received:

Your committee begs leave to make its report on the revision of the Constitution and By-Laws of the Ohio State Medical Society, and would suggest that the Society act under this revision during the coming year, and that the committee be continued, with power to further revise, the final adoption of the revised Constitution to be postponed until the next annual meeting,

Very respectfully submitted,

R. HARVEY REED, *Chairman*,
E. C. BRUSH,
A. RHU.

The report was adopted and committee continued with power to complete the revision and report at the next annual meeting.

On motion it was decided that the Society work under the revised Constitution, as reported, for the following year.

The Committe on Finance was filled by the appointment of Drs. P. P. Pomerine, C. P. Landon, T. P. Norris, Dudley P. Allen and B. M. Ricketts.

The Committee on Admissions was filled by the appointment of Drs. C. P. Landon, G. I. Cullen, T. J. Barton, D. J. Snyder and O. Everts.

The President appointed the following Committee on

Nominations, viz.: Drs. R. B. Hall, A. R. Baker, S. S. Thorn, T. D. Bain and J. M. Smith.

TREASURER'S REPORT.

My last report at Sandusky, June 17, 1891, showed a balance due the Society	$ 28 54	
Cash received by initiation and dues since last report	901 00	
	$929 54	$929 54
Since the above report and date the following bills (per vouchers) for use of the Society have been paid:		
J. A. Spencer, Assistant Secretary	$ 12 00	
G. A. Collamore, salary and incidentals	174 84	
Treasurer and Librarian	125 00	
Gazette Printing Company	5 50	
Postal cards and stamps	6 00	
T. Smith, stenographer	97 00	
G. A. Collamore, postage and stamps	2 00	
A. Gardner (post-office), stamps	3 00	
Gazette Printing Company	3 60	
Freight and drayage transfers	3 69	
Blade Printing and Paper Company	433 25	
American Express Company	23 10	
United States Express Company	6 60	
Adams Express Company	8 60	
Gazette Printing Company	5 25	
Postage stamps, January 9	2 10	
Bill of expenses of Secretary	5 00	
Printing	4 00	
Blank books	80	
	$920 73	
Cash on hand	8 81	$929 54

Respectfully submitted,

T. W. JONES, *Treasurer.*

LIBRARIAN'S REPORT.

In the library there are now 50 volumes of Transactions of the years of 1870–1–2–4–5–6–7–8, 1881–2, inclusive; 80 volumes of 1887; 45 volumes of 1888; 100 volumes of 1889; 75 volumes of 1890; 165 volumes of 1891.

Respectfully submitted,

Cincinnati, May 5, 1892. T. W. JONES, *Librarian.*

FINANCE COMMITTEE'S REPORT.

The accounts of the Treasurer and Secretary have been carefully examined and found correct. We would recommend that the Secretary be authorized to employ a stenographer. We would recommend that the dues for the ensuing year be $1.00 for each member.

Very respectfully,

P. P. POMERINE, *Chairman.*

REPORT OF COMMITTEE ON PUBLICATION.

The Committee met at Sandusky, June 19, 1891, and appointed the undersigned a sub-committee to edit and publish the Transactions.

Proposals to print the Transactions were submitted to three publishing houses in Toledo, one of which was burned out before completing its estimate. The following bids were received:

Blade Printing and Paper Company . .	$428 50
Andrews, Myers & Busse	561 75

Bids were based on an edition of 600 copies of 400 pages, 37 lines to the page, 50-lb. paper, bound uniform with previous years.

The bid of the Blade Company was accepted, and the work, with the exception of delays due to an unusual amount of work thrown upon the company by the burning out of another printing house, has been done in a satisfactory manner.

Very respectfully,

G. A. COLLAMORE, *Editor.*

COMMITTEE ON WEST VIRGINIA MEMORIAL.

The Committee on West Virginia Memorial reported as follows:

Your committee begs leave to report that, upon due investigation of the memorial presented by the West Virginia Medical Association at the last meeting of this Society, and passed at a meeting of said Association held in Parkersburg, W. Va., December 4, 1896, it deems it inexpedient for this Society to undertake the regulation of the fees or contracts made by its members, and therefore does not find any cause for action by this Society on the said memorial.

Very respectfully submitted,

DUDLEY P. ALLEN,
R. H. REE,
SAM. T. THORN.

Dr. N. P. Dandridge then introduced the following resolutions, which were unanimously adopted:

Resolved, That the published programme be and is hereby adopted as the order of exercises for the present meeting.

Resolved, That all papers passed when called shall not be called again until the conclusion of the session.

Dr. B. Tuckerman being unavoidably absent, his paper was read by title.

Dr. Auguste Rhu then read a paper entitled "Treatment of Acute Œdema of the Larynx."

Dr. J. E. Boylan read a very interesting paper entitled "Herpes of the Buccal Mucous Membrane," with presentation of a patient.

Discussion by Dr. Max Thorner.

On motion adjourned until 7 oclock P. M.

EVENING SESSION.

The Society convened at 7:30 P. M., with President Collamore in the chair.

Minutes of previous session read and approved.

Dr. A. T. Halsted gave an exhibition of "Physical Culture" in the Gymnasium of the Young Men's Christian Association. The exhibition was well attended and highly appreciated.

The following papers were read:

Dr. Dan Millikin: "The Doctor's Hands."

Dr. C. H. Merz: "Music in Medicine."

Dr. R. Harvey Reed: "A Contribution to the Study of Some of the Diseases Peculiar to the Right Iliac Fossa, with Reference to their Relief by Surgical Treatment."

Dr. Julia W. Carpenter: "Battle with Germs."

Dr. W. T. Barnes: "Indigestion."

The Chairman of the Committee of Arrangements announced that a special programme had been prepared as follows for the next morning:

Cincinnati Hospital:

8:30 A. M. Dr. C. D. Palmer; report of cases.
9:15 A. M. Dr. P. S. Conner; surgical clinic.

Free Surgical Hospital for Women:

8:30 A. M. Dr. C. A. L. Reed; abdominal section.

SECOND DAY'S PROCEEDINGS.

MORNING SESSION.

The Society convened at 10:30, President Collamore in the chair.

Minutes of previous session read and approved.

The session was taken up with the following programme:

Dr. Dudley P. Allen: "Meckel's Diverticulum as a Cause of Intestinal Obstruction."

Dr. C. A. Kirkly: "Report of Abdominal Work for 1891."

Dr. T. Dod Gilliam: "A Report of Abdominal Operations." Discussion by Drs. Jones, Hall, Kirkley and Gilliam.

Dr. C. B. Parker: "Aseptic Gangrene."

Dr. B. M. Ricketts: "Report of Cases of Trephining for Epilepsy," and a "Case of Double Herniotomy."

On motion adjourned until 2 P. M.

AFTERNOON SESSION.

The Society convened at 2 o'clock, the President in the chair.

Minutes of previous session read and approved.

The Society proceeded to the election of officers, which resulted as follows:

President—Dr. Dudley P. Allen, of Cleveland.

The Committee on Nominations reported as follows:

1st Vice-President—Dr. N. P. Dandridge, Cincinnati.

2d Vice-President—Dr. C. E. Brush, Zanesville.

3d Vice-President—Dr. C. A. Kirkley, Toledo.

4th Vice-President—Dr. W. A. Dixon, Ripley.

Secretary—Dr. T. V. Fitzpatrick, Cincinnati.

Assistant Secretary—Dr. J. A. Spence, Crestline.

Treasurer and Librarian—Dr. G. I. Cullen, Cincinnati.

Member of Committee on Finance for five years—Dr. P. P. Pomerine, Berlin.

Member of Committee on Ethics for five years—Dr. C. L. Van Pelt, Toledo.

Member of Committee on Publication for five years—Dr. L. S. Colter, Cincinnati.

Member of Committee on Legislation for five years—Dr. C. E. Beardsley, Ottawa.

Member of Committee on Admissions for five years—Dr. A. R. Baker, Cleveland.

The place of next meeting, Put-in-Bay; the time of meeting, on motion, was to be decided by the President and Secretary.

The President then delivered a very able address upon a preëminently proper subject—"The Ohio State Medical Society."

On motion by Dr. Murphy, of Cincinnati, a vote of thanks was returned to Dr. Collamore for his broad, able and highly instructive address.

On motion by Dr. Comegys, of Cincinnati, the following resolutions were unanimously adopted:

Resolved, That the petition of the American Medical Association to Congress to create a Department and a Medical Secretary of Public Health, passed at the last session of the Association, be, and the same is hereby, approved.

Resolved, That the President of the Ohio State Medical Society furnish a copy of this resolution to the Senators and Representatives of Ohio in Congress, with a request that they support the bill now before Congress appertaining to this subject.

Dr. Gustav Zinke then read a paper entitled "The Modern Cæsarean Section: How and When Performed." The

paper was illustrated with manikin and drawings. Discussion by Drs. Stamm, Gilliam, Ed. Ricketts, R. H. Reed, and the author.

Dr. W. E. Wirt: "The Treatment of Certain Forms of Club-Foot.

Dr. O. Hasenkamp: "Treatment of Orchitis and Epididymitis."

Dr. J. A. McGlenn: "Appendicitis."

Dr. T. M. Wright: "Galvanism in Fibroid Tumors of the Uterus," with report of cases.

The President announced the following special programme for the next morning:

Cincinnati Hospital:

8:30 A. M. Dr. Jos. Eichberg; case of locomotor ataxia.
9:00 A. M. Dr. N. P. Dandridge; knee cases.
9:30 A. M. Dr. Jos. Ransohoff; surgical clinic:
a. "Excision of Knee."
b. "Arthrodesis of Ankle."
c. "Excision of Cervical Glands."

Free Surgical Hospital for Women:

8:30 A. M. Dr. C. A. L. Reed; abdominal section.

On motion adjourned until Friday morning at 10:30.

THIRD DAY'S PROCEEDINGS.

MORNING SESSION.

The Society convened at 10:30, the President in the chair.

Minutes of previous session read and approved.

Dr. Jas. T. Whittaker read a paper on "Methylene Blue and Methylene Violet."

Dr. C. E. Perkins: "Acute Rhinitis with Retention of Secretions."

Dr. W. A. Dixon: "Medical Properties of Bromo-Lithia Water."

Dr. F. W. Langdon: "Rational Treatment of Typhoid Fever."

On motion adjourned until 2 P. M.

AFTERNOON SESSION.

The Society convened at 2 o'clock, the President in the chair.

Minutes of previous session read and approved.

Dr. W. D. Gibson: "The Use of the Galvano-Cautery in Ophthalmic and Laryngeal Surgery." Discussion by Dr. DeBeck.

Dr. David DeBeck: "The Relation of Errors of Refraction to Chronic Diseases of the Eyelids." Discussion by Dr. W. W. Seely.

Dr. F. C. Larimore: "Radical Cure of Hernia by the Use of the Buried Antiseptic Suture," with report of additional cases.

Dr. Philip Zenner: "Some Points in the Symptomatology of General Paresis."

Dr. S. P. Kramer: "Intestinal Tuberculosis."

Dr. Robert Peter: "Sepsis," with a narration of a few interesting and instructive cases.

Dr. C. D. Palmer: "Present Status of Gynecology."

Dr. N. P. Dandridge: "Tuberculosis of Bone."

Dr. A. Ravogli: "Ichthyol in Eczema."

The Society, on motion, returned a vote of thanks to the profession of Cincinnati for the many courtesies received throughout the meeting.

On motion adjourned to meet at Put-in-Bay at the call of the Secretary.

Respectfully submitted,

T. V. FITZPATRICK, M.D.,
Secretary.

G. A. COLLAMORE, M.D.,
President.

LIST OF DELEGATES.

The following is a complete list of the delegates from local societies:

Ashburn, A. W.—Clermont County Medical Society.
Bonifield, C. L.—Academy of Medicine of Cincinnati.
Boylan, J. E.—Academy of Medicine of Cincinnati.
Brannon, T. H.—Tuscarawas County Medical County.
Brundage, L. H.—Green County Medical Society.
Cameron, Otis—Academy of Medicine of Cincinnati.
Carroll, T.—Academy of Medicine of Cincinnati.
Carroll, T. M.—Clark County Medical Society.
Cleveland, J. L.—Academy of Medicine of Cincinnati.
Corbin, Lee—Montgomery County Medical Society.
Crossland, J. C.—Hildredth District Medical Society.
Dawisson, E. C.—Montgomery County Medical Society.
DeBeck, David—Academy of Medicine of Cincinnati.
Drury, A. G.—Academy of Medicine of Cincinnati.
Ellis, A. N.—Academy of Medicine of Cincinnati.
Evans, O.—Lebanon Medical Society.
Evans, C. S.—Academy of Medicine of Cincinnati.
Fackler, G. A.—Academy of Medicine of Cincinnati.
Fogle, L. J.—Academy of Medicine of Cincinnati.
French, J.—Academy of Medicine of Cincinnati.
Haines, W. D.—Academy of Medicine of Cincinnati.
Hyndman, J. G.—Academy of Medicine of Cincinnati.
Hyssel, J. H.—Meigs County Medical Society.
Johnstone, A. W.—Academy of Medicine of Cincinnati.
Jones, G. E.—Academy of Medicine of Cincinnati.
Kennedy, Phillip—Clermont County Medical Society.

Kent, F. M.—Greene County Medical Society.
Keenes, D.—Montgomery County Medical Society.
Kiely, W. E.—Academy of Medicine of Cincinnati.
Koehler, Max—Academy of Medicine of Cincinnati.
Kramer, S. P.—Academy of Medicine of Cincinnati.
Mitchell, E. W.—Academy of Medicine of Cincinnati.
Mitchell, G. S.—Academy of Medicine of Cincinnati.
McClure, J. A.—Greene County Medical Society.
Miller, W. M.—North Central Ohio Medical Society.
Myers, G. C.—Montgomery County Medical Society.
Orr, G. B.—Academy of Medicine of Cincinnati.
Osborn, Mary E.—Academy of Medicine of Cincinnati.
Prendergast, J. W.—Academy of Medicine of Cincinnati.
Ravogli, A.—Academy of Medicine of Cincinnati.
Reeve, J. C.—Montgomery County Medical Society.
Schwab, Louis—Academy of Medicine of Cincinnati.
Shaller, J. M.—Academy of Medicine of Cincinnati.
Shaw, W. E.—Academy of Medicine of Cincinnati.
Speer, A. T.— ———
Stewart, R. W.—Academy of Medicine of Cincinnati.
Stuart, J. O.—Greene County Medical Society.
Walker, A. B.—North-Eastern Ohio Medical Society.
Wenning, W. H.—Academy of Medicine of Cincinnati.
Wilson, S. S.— ———
Wright, Emily—Cincinnati Medical Society.

ADDRESS OF WELCOME.

BY N. P. DANDRIDGE, M.D., CINCINNATI.

Mr. President and Gentlemen:

It is with great pleasure that I extend to the members of the Ohio State Medical Society a most hearty welcome on the part of the profession of Cincinnati. More than twenty years have now elapsed since the Society has honored us with its presence, but these years have counted more in the momentous and wide-reaching changes they have brought than any century in the history of medicine before. These two decades have seen the burial of much of the old medicine and the development of most of the new.

During this time antiseptics and asepsis, with their immeasurable influence on operative work, have appeared above the medical horizon. The bacteriologists, with their culture-broths, their colonies and their ovens, have come among us. The laparotomist has developed into full flower. The pus-tube has been invented, and the appendix has thrust itself into recognition, even if it has not yet justified its *raison d'etre;* while the septum and turbinated bones have grown so closely together that the galvano-cautery alone has been able to separate them.

Within twenty years we have seen the "rise and fall" of many a widely-accepted theory. Well-sustained and conclusive demonstrations of the cause of disease have been followed by immature and futile therapeutic deductions, whose promulgation has been but the precursor of their downfall. With the rapid dissemination of knowledge ne-

discoveries have been widespread at once, and often received with an enthusiasm and excitement that bordered on wild delirium, and which has only too often been followed by a revulsion equally illogical.

Within twenty years the work of the dispensing and compounding druggist has almost disappeared, and we have now pilules, parvules and peptonoids, tablets and triturates, and can easily carry in the vest pocket supplies which at that time would have stuffed out a pair of saddle-bags.

But who will say that in this almost wild and convulsive change, this giving up of the old and adopting of the new, with the many disappointments and failures, with immature deductions and uncertain inferences, that great and solid progress has not been made? A retrospect of twenty years lands us amid strange and unfamiliar surroundings. It is hard to recall the theories on which our deductions were based before we began to talk of the bacillus and pyogenic microbes, of ptomaines and chemotaxis, of immunity and phagocytes. Can we picture to ourselves the work of the surgeons before they were occupied with osteotomies, resection of ribs, or thyroidectomy, or busied themselves with nephrectomies, intestinal anastomoses, and gastro-enterostomies? Can we recall the armament of the physician when we had no antipyretics, no hyoscine, no nitroglycerine, sulfonal or menthol, and were without the long list of effective alkaloids?

Who can foresee and foretell where this wild progress is tending, where it will end, where we shall stand

> "When this hurly-burly's done
> And the battle's lost or won?"

Does it not seem a century ago when we felt it was necessary to discuss the "antagonism of opium and belladonna," the merits of "chloral hydrate," and the use of the "ophthalmoscope and sphygmograph?" And yet these were the subjects of three of the papers at our meeting in '71.

But it is not my purpose to dwell upon a retrospect of the past, so bewildering and so amazing; but only to tell you of the pleasure your presence here to-day has given us, and to stretch out to you the hand of friendship and of welcome.

Your committee felt that the most acceptable greeting they could extend was to present you with a programme so full of the live and active questions of the day that you would feel that your time had been well spent, and that you would return better equipped for your professional work. This part of our work has been made easy by the ready coöperation of our friends throughout the State, and the forty-three papers which we lay before you is, we consider, the best measure of our success.

The pleasure of seeing the Society once more in Cincinnati is not, however, unmixed with sad reflections. Not a single name on the programme to-day is to be found among those who contributed work to the meeting of '71, and those of you who were here then will find many a gap in our ranks and miss many a notable and well-remembered figure, and you will all, I am sure, join with me in the expression of profound sorrow and regret that the marked personality that presided over our meeting of twenty years ago has been recently so bowed and impaired by the heavy hand of disease that he is no longer able to extend to you the cheery greeting which was never wanting while Dr. Dawson was an active spirit among us.

GEORGE ANTHONY COLLAMORE.

George Anthony Collamore, son of Dr. Anthony Collamore, was born in Pembroke, Mass., November 9, 1833. He was graduated from Phillips Academy, Andover, Mass., in 1850, from Dartmouth College in 1854, and from the Medical Department of Harvard University in 1859.

After practicing two years in West Bridgewater, Mass., he removed to Toledo, O., in 1861.

In August, 1862, he was appointed Surgeon to the One Hundredth Regiment Ohio Volunteer Infantry, and served nearly three years in the field, being mustered out in July, 1865.

Returning to Toledo he resumed the practice of medicine, and has remained there to the present date.

He served as Coroner of Lucas county from 1872 to 1876. He served as Health Officer of the city of Toledo in the year 1879; also from September, 1887, to May, 1891.

Having joined the State Society in 1880, he was elected Secretary in 1882, which office he held for nine years.

THE OHIO STATE MEDICAL SOCIETY: ITS PAST, PRESENT AND FUTURE.

BY G. A. COLLAMORE, M.D., TOLEDO.

In the course of proceedings in a certain society with which I am acquainted there comes a time when each member is invited to speak "for the good of the order." It seems to me proper that at the present time I should say something which may perhaps be for the good of the society with which we are all connected. I propose, therefore, as my theme, the Ohio State Medical Society—its past, its present and its future. We are now at an interesting period of its existence. Its numbers, owing to a wise amendment to its Constitution, have been largely increased. The interest in its proceedings, as indicated by the programme now before you, is active and evident. The present meeting is a guarantee that its usefulness is unabated. It will be of service, then, to review its past briefly, in order to learn if its objects originally in view have been attained and its influence has been such as had been hoped.

The Ohio State Medical Society was founded in 1846. After several preliminary meetings its first constitution was formally adopted in 1848. Its charter was obtained from the General Assembly of the State the same year. Of its twelve charter members, none are now members of the Society—if, indeed, any are now living. Of the present members I find none of the date of 1846 except Dr. I. J. McIlhenry, of Dayton, and of 1847 only Dr. T. W. Jones, of Columbus. The Proceedings of 1848 give the charter, the original constitu-

tion and by-laws, and for other matter, an "Address to the Society," by Dr. R. Thompson, of Columbus, and an "Address to the Physicians of Ohio," by Dr. John Butterfield, of Columbus, Chairman of the Committee on Publication. The only other business was the adoption of the Constitution, the admission of members, etc., an address by the President-elect, Dr. J. P. Kirtland, of Columbus, and a paper relative to auxiliary societies, neither of which appear in the Transactions, which form a pamphlet of eighteen pages.

I desire now to call your attention to the constitution then adopted, and especially to its second article, which defines the objects of the society. It is as follows:

"SEC. 1. The Society shall constantly have in view, first, the association of the profession, for the purposes of mutual recognition and fellowship; secoud, the maintenance of union, harmony and good government among its members, thereby promoting the character, interests, honor and usefulness of the profession; third, the cultivation and advancement of medical science and literature, and the elevation of the standard of professional education."

The chief criticism which I desire to make to this article is that its object is solely for the benefit of the medical profession. It entirely ignores that large class of duties which are defined by our code as "duties of the profession to the public." Yet, though this constitution makes no mention of these duties formally, it is plainly to be seen by an examination of its proceedings that due and adequate attention has been paid to these duties from that time to this, and that the omission was an oversight, and unintentional.

As to the ostensible objects of this society, the fellowship and harmony of its members, the cultivation of medical science and elevation of professional education, I think we may safely assert that success has been attained. And while we may not flatter ourselves that all has been done which might have been done, yet there is nothing in its history to

bring the blush of shame to our cheeks or the bitterness of regret to our minds.

The constitution was revised in 1882, and is substantially the present constitution, with the exception of two articles. The "objects of the society" under this constitution, while stated with more brevity, are yet more complete and comprehensive. They embrace "the advancement of medical knowledge, the elevation of professional character," etc., and finally the subject omitted in the old constitution, "the improvement of the health and the protection of the lives of the community."

By this last clause the Society has placed itself in relation to the public and its interests. What has been the record of the Society since its adoption?

In 1884, Dr. H. J. Sharp, Chairman of the Committee on Medical Bills, presented a resolution, "That the public good and the higher interests of the medical profession would be promoted by the establishment of a State Board of Medical Examiners," etc., supplementing the same by the copy of "An Act to Establish" the same, to be passed by the General Assembly of the State. This resolution was adopted. Also, at the same meeting, the Society adopted a resolution offered by Dr. W. A. Scott, recommending the teaching of physiology and hygiene, "including the effects of intoxicants and narcotics upon the human system" in the public schools.

In 1885, the Committee on Board of Examiners Bill reported failure in passing the act by the Assembly, attributing such failure to the influence of certain doctors in the Assembly, presumably not members of this Society.

In 1886 the committee again reports failure of the act to pass, though reporting the passage of the act creating a Board of Health. The failure this time is attributed to the opposition of the newspaper press, on the mistaken ground that the act prohibited advertising.

In 1887 the act passed the Senate, but was defeated in

the House by the influence of the "newspapers, the quacks and charlatans, and a few teachers in certain medical colleges.

The enactment of a law to establish a State Board of Health was, however, a source of congratulation, and the society resolved to coöperate with the boards in all ways to increase its usefulness.

In 1888 the committee reported that from the presence of "nine or ten doctors and quasi-doctors" in the House, it had been inexpedient to push the Board of Examiners Act.

This is the present status of this movement to regulate the practice of medicine, so far as this society is concerned, after five years of earnest effect and the expenditure of a large sum of money.

The present year has witnessed another endeavor towards the same end, supported mainly, as reported, by the medical colleges of the State, which promises to succeed no better. It encounters the same violent opposition from the newspaper press and their allies, the advertising quacks, the one fearing lest this source of revenue should be cut off, the other lest their occupation should be gone. The popular sentiment in Ohio is apparently the same now as in 1848, when Dr. Thompson thus discoursed to this society: "Without stopping to inquire into the right which one class of men have to care for another, . . . or whether a community has a right to employ a regular physician or a quack; I may say, in truth, all enactments on the subject of medicine, prescriptive, proscriptive or dictatorial, under fines, penalties or disabilities, are extremely difficult of execution, and hence impracticable, and soon become a dead letter; . . . for the reason that those who employ irregular practitioners conceive that they have a right to employ and pay whomsoever they may prefer to render professionanal services in their families; . . . and for the reason that such laws are supposed to be intended to grant exclusive privileges to the regular pro-

fession, though in fact the purpose and intention is to protect the public against imposition."

Much effort has since that time been made, in one way or another, to impose some restraint upon quackery in the State, and the quite inadequate result has been the passage of one act requiring practitioners of medicine to be graduates of medical colleges in good standing, or to have had ten years previous practice. If I might venture to criticise the work of the many worthy men who have sought this improvement, it would be merely to suggest that perhaps they have attempted to accomplish too much at once. All these acts sought to erect a medical bar, which all persons practicing at the time must pass in order to continue their business. Their aims were practically to revolutionize the practice of medicine, and revolutions are usually the result of long-acting causes, if not abuses. The people of Ohio have so far decided that the abuses have not been sufficient to require such radical changes, and the dissensions in the profession have aided this decision. Why Ohio should not rank in this respect with Illinois, or even West Virginia, is a problem past solving; though, if it is any consolation, there are other States, much older in statehood and presumably more advanced in medical science, Massachusetts, for instance, which furnish a paradise for quacks quite as salubrious as Ohio.

I have suggested the idea that we have asked too much. A law requiring all practitioners to register their diplomas or length of practice, with a nominal fee, with penalty for refusal, would, in my judgment, supply the defect in the present law. Even some of the newspapers which so bitterly oppose the "examiner's" bill, advocate this measure. It is evident that no bill which is aimed at the pocket of the press, be it rural or urban, secular or religious, has at present any chance of success. But to be able to cut out the ignorant quack, the most dangerous to the community, would be a good step in progress.

At the adoption of the new constitution in 1882 the membership was 540; by the last list, in 1891, it was 556. Thus, in ten years, when the population of the State had largely increased, and with it the total number of physicians, this society has barely held its own. What has been the cause of this slow growth, or want of growth? It has not been the lack of able men to preside, or of interesting and valuable papers presented, or the presence of internal dissensions or want of harmony. It has seemed to me that the State society has suffered to the profit of the local, especially the district society. I have now and then heard the remark that such or such a society—a district society—was equal to the State society—in attendance and quality of papers presented. There has been a tendency to foster the local society at the expense of the State society. Then the multiplicity of other societies, national, inter-state and valley societies, etc., have withdrawn interest from the true unit, the State society. This tendency we hope now to have, in a great measure, counteracted by the incorporation of our local societies with the general society. In accordance with our last constitutional amendment, up to April 1, thirty-two county and district auxiliary societies, comprising new members, have joined the State society, and their delegates are here present, and assisting in the business of this society.

The prosperity of the society being now assured, there are several subjects relating to its future interests to which I desire to call your attention.

The first is the place of meeting. The original by-laws contained the section: (1) "The regular annual meeting of the Society shall be held in the city of Columbus;" and the first six annual meetings were there held. In many States the place of meeting is fixed, usually the largest or most central city. Since 1851 this society has met in many places throughout the State, the longest period, from 1860 to 1868, at White Sulphur Springs. In this, the largest city, it has

met but twice before, 1854 and 1871. As Columbus is the most central and accessible city, it would appear that it is the logical meeting place, as the founder of the Society decreed.

There are arguments both for and against a fixed place of meeting. In its favor may be adduced the central position, affording equal facilities to all, thus tending to a larger attendance.

On the other hand, since it has become the custom for the local society to assume the burden of entertaining the visiting society, it is evident that this duty in the course of years might become too onerous, as it is manifestly unjust to lay this burden always on the same shoulders. The work and worry of inventing and preparing these entertainments are not light, not to mention the expense, which is often considerable. Yet, to omit them now would not be expected, as they are the doctor's recreation, of which he has none too much, and add materially to the pleasure, if not success, of the meeting. If, therefore, they are not to be abandoned (and after this meeting surely no one would advocate that), it is certain that our society must continue to be peripatetic, or some other solution must be found.

The natural solution of this question is the annual banquet. In our neighboring State of Indiani, for example. the banquet is an established feature of the occasion. In the first State Society to which I had the honor to belong, the annual meeting and the annual dinner—the latter "Cradle of Liberty," invested with historical memories—were the medical events of the year. That the custom has not yet lost its charm is evidenced by the following extract from the proceedings of that society for 1891: "At 1 p.m., the annual dinner, presided over by the anniversary chairman, . . . was served to more than eight hundred Fellows and invited guests" (the society numbering over seventeen hundred members). This fact alone would demonstrate the presperity of the society. Without recommendation, I invite your

attention to this question, as one affecting the well-being of this body.

Another subject which is now of pressing importance, and will be likely to become still more so in the future, is that of the ability to read all papers offered for the annual meetings. With but little effort to obtain them, there are presented on the programme more than forty papers, which the authors no doubt desire to present to you. Under the new provision, limiting papers to twenty minutes, a larger number may be read now than formerly. But it is the discussion, which may be unlimited, that consumes the time, and it becomes necessary to make provision for this exigency. To do this there are several methods. To limit debate in any other manner than now, that is, to shut out any member who desires it from participation, would be hardly fair and just. A second device would be to limit the number of papers. Thus, I observe that at the last annual meeting of of the Massachusetts Medical Society, with its 1,733 Fellows, only twelve papers were presented. A reform in this direction seems hardly desirable. Since our number is so largely increased, it is but reasonable to suppose that a larger number of papers will be presented in the future. In the American Medical Association and some State societies, the method of sections is adopted. The advantage is that all papers may be read. The disadvantage is that all members can not hear all papers. If this society is to follow the practice of, for instance, the Mississippi Valley Medical Association, which at its last meeting, having fifty or sixty papers on its programme, heard only about one-third of them read, it will surely tend to discourage the preparation of written communications.

The practice in the American Medical Association and in some societies which have adopted it, is to have the general session in the morning and section work in the afternoon. Some such plan as this must be adopted when

the number of papers is so great as to preclude their being read in the general session. I suggest the consideration of this question and the working out of some method which shall maximize the advantages and minimize the disadvantages of the situation.

The last amendment to the constitution, in changing the relation of auxiliary societies to the State society, has rendered it necessary to revise other articles and sections of the constitution to make them conform to the present status. Most of the necessary changes will be verbal only, in order to carry out the spirit of the amendment. I would indicate, as subject to these changes, Sections 4 and 5 of Article III, Section 4 of Article IV, and Section 3 of Article VIII. The object of this revision is to remove all ambiguity as to the meaning of these clauses, and to bring all of them into harmony with the new conditions.

It having appeared that this society has had an honorable and useful past career, that it is now in a healthful and flourishing condition, it remains only to indicate what should be its future course, to what objects should its powerful influences be exerted:

First, is seems to me proper that this society should continue to exert its influence in favor of a board of examiners law, or a registration law, or any other law having for its object the restraint of quackery and the promotion of the public health. We owe it to ourselves as physicians, we owe it to ourselves as members of this society, notwithstanding the non-success, the disappointments, the waste of time, effort and means in the past, to continue on in the way our feet have entered. It is our only consistent course. We may be long on the way, but we shall arrive at the goal at last.

Second, it is due to ourselves, as guardians of the health of the community, to assist in the future, as in the past, all efforts of the State Board of Health in the preservation of the

public health and the prohibition, as far as possible, of the appearance and spread of communicable diseases.

Third, it is proper to add our influence to that of the American Medical Association and other societies towards the establishment of a department of public health by the general government. The reasons therefor are amply set forth in the petition lately presented by the Committee of the American Medical Association, and are obvious and conclusive. I would especially invite your attention to an address by Dr. A. Walter Suiter, of New York, to the New York State Medical Society, at its meeting in February last. In cogency of reasoning and copiousness of illustration it is invincible, and were Congress a body amenable to conviction, the establishment of this bureau would not be long delayed. The Chairman of the Committee of the American Medical Association is a member of this society and a prominent member of the profession in this city, and the action of this society should not be doubtful.

Finally, your kind consideration is asked for the Pan-American Medical Congress. This has been incorporated under the laws of our own State, and is thus peculiarly an object for your regard and encouragement. Arrangements are now being made for the first meeting in Washington, D. C., in September, 1893. An enterprise extending over an entire hemisphere necesserily entails a large amount of labor, not to mention worry and vexation, on the officers of the Congress, the major portion of which falls on your fellow-member, Dr. Charles A. L. Reed, Secretary General. Let the Ohio State Medical Society contribute freely of its means and influence to the success of this meeting.

THE DOCTOR'S HANDS.

BY DAN MILLIKIN, M.D., HAMILTON.

I think that I have a better object before me to-night than to present to your consideration a new instrument or one newly named. I only beg leave to call your attention to a set of wonderful tools which are in the possession of every doctor before he has his first patient. They are easily worth twenty thousand dollars, the full set of ten fingers and thumbs on good hands. They are so wonderful and beautiful that they are not excelled by the last additions to the armamentarium even of the oldest doctor, and I think that they are worthy of much discourse.

Are the doctor's hands esteemed as highly as they should be? Are they cared for as scrupulously as his inferior instruments? Does the average doctor, of whom we hear so much, see to it that they are not only in a condition to do no harm?

What is needed in the doctor's hands? I confess that I think most highly of strength. I do not dream that it is very advantageous to have strength to hold a patient during some disagreeable operation or investigation, much less do I think it desirable that the doctor should have the strength to be rough with his patient, as the saying goes, and inflict pain by main strength and awkwardness. That is a shocking idea in these days when no one can think of pain with fortitude or composure, much less endure it. Quite otherwise is my appreciation of strength in the physician's hands. I value it because it is the essential condition of that gentleness and

dexterity which avoids the infliction of superfluous pain. If I must be probed, let it be by an instrument securely held in the fingers of a strong hand, that there be no false move, no slipping, no trembling. If I must have a foreign body taken from my cornea, let it be by a blacksmith or a vice-hand rather than by a well-informed and tremulous doctor. If a knife is to be thrust through my skin, or, peradventure, into the deeper tissues, may it be guided by Hermes into the strong hand of one who will send it home without wavering, and without a succession of feeble, wiggling stabs. If I have a broken bone or a dislocation, may I happen upon no feeble-handed surgeon to torment me. Send me one who has the strength to reduce the deformity or dislocation with gentle swiftness and certainty. If I have a molar to be rocked out of his socket, oh, may I have a dentist with strong hands! He may be as full of prattling, quizzing gossip as a fool barber; he may have the post-mortal breath of one who smokes not wisely but too well, quantitatively, not qualitatively; he may eat onions like a Spaniard until his offense is rank indeed; he may even chew fine-cut of most mysterious nature, between meals or between smokes, and patronize his own cuspidore. All this I can forgive him, and much more. We must forgive much in a dentist, in any event. But, oh, when he clamps himself on my molar, may Hercules be at his elbow! When I clutch the arms of the operating-chair, and, in mine anguish stretch myself like the blind giant who pulled down the pillars of the pagan temple, when the solid earth reels beneath me like the deck of a small craft in a big storm, when I hear in my own head the sound of the snapping of the tap roots of twenty mighty oaks, centuries old, rent from earth by an unparallelled hurricane, then what forgiveness can there be for the feeble, dapper little dentist who pulls and jerks and ejaculates and jerks again as if he wanted to hear my heart break itself? I never thought to amend Shakespeare much, but it does seem to me that the

lines, "If it were done when 'tis done, then it were done quickly," should be given to him who comes with dental forceps in hand.

Mercy follows strength. Dexterity goes with strength. Upon that dexterity may depend the salvation of an eye or an ear. The man who has it not may plunge a chisel into the brain, or, in spite of good anatomical knowledge, may do damage to some important organ of more generally acknowledged usefulness, for example the stomach. So much was Fergusson impressed with this truth that he practiced wood-working with great assiduity, partly to unbend his mind, but partly because he was acute enough to see that his surgical ability and efficiency were enhanced by this mechanic art. In his time he was by far the most dexterous surgeon in London.

And dexterity is of importance not to the patient alone, but to the physician himself. For lack of this gift, so intimately connected with the strength, many a good man has been laid low by the hideous sequences of a dissecting wound, or a prick received in dressing the wounds of the living.

But I give not all my praise to grace, gentleness and dexterity, the accompaniments of strength. Mere strength of hands and fingers is desirable. It is a sad thing to see one unable to nip off the bone that comes between his bone-forceps. To see one with a feeble hand desist from a podalic version because of fatigue is a sickening sight to one who reflects that it is a game of life and death for some one, or some two, and that, in most cases, just a little more strength would bring victory. The merciful gods gave to the Chamberlens the knowledge of instruments which they, to their lasting infamy, gave grudgingly to the medical profession, and which the physician must have strong hands to use well. Even to tie a knot well requires a certain amount of strength in the hands, and hands ought to have it and may have it if

the proper training is given to them by handicraft or by gymnastics.

Next to strength, the doctor's hands should have softness of integument. The inside of the fingers may be of steel and whalebone; the outside must be as soft as a baby's skin. The advent or invasion of women into the medical profession is partly justified by their soft hands. To sensitive people, especially to children, the doctor's first visit is like an anticipated visitation of an ogre. Much may be done at a first interview to convince a patient that the physician is a good and kind friend, but not in any case can this be done if his digits suggest claws or hoofs. Neither the charm of good manners and good clothes nor the odor of sanctity itself, nor yet the music of a good voice, will go so far toward pleasing and reassuring the patient as the touch of a soft hand.

This is a very serious matter to doctors like myself who are abnormally soft inside, and are, nevertheless, cursed with redundancy of epidermic tissue, or as the horsemen rudely say, are thick-skinned. To some good men, among whom I am conspicuous, the tendency to develop horny thumbs and forefingers in winter is sufficient to cause them to enrollment in the labor party without investigation.

And this (forgetting the patient a moment) brings pain and danger to the physician. Fissures will come in the rough and thickened integument, and they will deepen continually until they become exquisitely painful, like little fissures elsewhere. Such persons, with whom I certainly ought to have great sympathy, are also apt to have a rough and chapped skin, even upon the backs of the hands. Hang-nails are abundant, and at their bases there appear little solutions of continuity, which, like the deep fissures and chaps on the tips of the thumbs and forefingers, open the gate for infection for the doctor.

Suffer me to prescribe. The doctor afflicted with an integument of this sort must be gloved in leather, kid or dog-

skin. The rule of skin for skin is imperative nine months out of twelve. Wool, or the fleecy lining of fur driving-gloves, will greatly aggravate the disease, for it is a disease, in a single day. The gloves should be dusted daily within with boracic acid in impalpable powder. The hands should be washed for a long time in warm water, the longer the better. A minimum of soap should be used, and at the conclusion of the washing the soapy water should be disposed of so that the hands may be rinsed in rain water or distilled water. Water that contains even a little mineral water is ruinous. At the conclusion of the washing there should be not the slightest slippery feeling. If the case is a bad one, the hands, still wet, should be thoroughly rubbed with a thimbleful of dry oatmeal. Rub hard on the roughest places, and note how the redundant epithelium is disposed of in little cylinders and pellets after long soaking.

And this is the whole object of treatment, just to get rid of epithelium and then to reduce its rapid formation under the influence of an inflammatory process. And how shall we reduce the inflammation? I recommend one drug, and one only, which commends itself because it is useful in superficial inflammation of the skin, and further because it has something like a solvent effect upon the horny layer of the skin. I recommend salicylic acid in an appropriate ointment. There is only one vehicle for the drug in these cases: lanolin. I have tried and discarded all others. Fats are said to be bad when they develop fatty acids. They are bad anyway, unless used constantly and freely. Vaseline, as I have proved in many experiments, does not soften the epidermis in any degree. Glycerine is sticky and irritant to many skins. Therefore, I recommend twenty grains of salicylic acid in an ounce of lanolin. Oil of wintergreen will most successfully suppress the muttony odor of lanolin, and this may be important in agricultural districts. After washing the hands in working hours a tiny bit of this mixture should be rubbed upon

the affected parts freely, and over all the fingers and hands in smaller quantity. To accomplish its distribution the hands may be wet with alcohol, bay rum, cologne, lavender water, or any alcoholic liquid. Then, if work demands it, the palms and palmar surface of the fingers may be wet with alcohol and wiped with a towel while wet. At night the hands should be more freely anointed with the same ointment and should not be wiped in haste. Under this treatment I will warrant that the roughest hands will soon become smooth if they are not too much irritated during treatment by wool, chalk, plaster-of-Paris, earth, soap, cold wind and cold water. Even persistent hang-nails tend to disappear under this application, but they need in addition to the treatment, one hundred strokes per diem with a stiff nail-brush. It is a line of treatment which not only gives the greatest efficiency to the doctor's ten best intruments, but, by closing scores of little breaches in the skin, makes him much safer as he goes about his daily and nightly work among creatures clean and unclean.

We hear so much of the *tactus eruditis*, and it might be thought right that in a discourse on hands and fingers, something should be said of it. The trained and discriminating touch is not a matter of the hands, and cannot be said to be acquired by training of them. It is a matter of the head, and is acquired by mental discipline. But this thing is certain: The mind cannot acquire discriminating power if it is compelled to pass upon the impressions received upon clumsy, case-hardened fingers. The mind can only work with its tools, and the excellence of its work is partly in proportion to the efficiency of its tools. I can't detect hotness, dryness, harshness, fluidity or solidity, nor any other thing my mind ought to detect by touch, unless I have good fingers for the mind to work with. As well give me an erratic thermometer and ask me to make a fever-chart.

What other attribute should strong, dexterous, soft hands

possess? Cleanliness! The surgeons and microbists may be able to forgive me when I say that the best reason why a doctor's hands should be clean is that uncleanliness is ungentlemanly, and the doctor must not swerve in the least from any essential point of gentlemanliness. The requirements of refined people should be perfectly satisfied by the doctor. The fastidiousness of the sick people should be satisfied absolutely by the extremest fastidiousness of the doctor, for he should be fastidious about himself first of all.

Next to this reason for requiring the doctor's hands to be clean comes another, a truth which I hardly know how to state, so greatly has knowledge suffered of late from the epidemic madness of microbists. In its simplest form this principle may be thus worded: Dirt seems to be a carrier of many forms of disease.

I am not able to recommend that the doctor's hands should be any more than clean. I have no fetish, no ritual for his hands. They should be just as clean when he touches a patient as if he were about to knead bread, and I do not think they need be any cleaner. His hands should be as clean as he would wish his table ware. They should be as clean as the utensils in a well-managed chemical laboratory. They can't be any cleaner than that, and it is well to remember that chemists say that apparatus promiscuously soiled by chemicals are not clean.

If you attempt to go beyond that doctrine of the holy efficacy of absolute cleanliness, if you try to please all the bacteriological surgeons, you will use soap to get the rough dirt off your hands, boiled water to get the soap off, ether to remove the sebaceous matter from your skin, tar-water because Lawson Tait approves of it and nothing else, bichloride of mercury to kill germs, turpentine because they use it in Pittsburg, peroxide of hydrogen to destroy all dead organic matter, then mysterious proprietary disinfectant solutions

from St. Louis, recommended by college professors who like to see their names in print, aniline dyes to stain the living bacilli into a condition of innocuous humiliation, alcohol to get the dye-stuff off the hands, permanganate of potash to stain 'em up again, oxalic acid to take the permanganate off, and last of all plain water to remove the oxalic acid. All this done, you may say with Jack Falstaff at the end of the play, "I do begin to perceive that I am made an ass." The knowledge comes tardily to some as it came to him, but it will come if you concentrate your attention upon microbes of which we know little, and microbicides about which microbists know nothing, and if you fail to remember, constantly, night and day, the one sure principle which we knew long ago and which we can probably never outgrow, that organic matter is very dangerous after it is dead, and that it contains some substance or substances which strongly dispose to inflammation, suppuration and sepsis. It is well for the physician and surgeon to be a biologist, at least to the extent of knowing what the most careful and ingenious biologists are doing in the study of the lowest forms of life, but let it be recorded that up to this date the biologists have not given to the physicians and surgeons any better rule of practice than to be absolutely clean.

Some of them declare that germs are not merely on, but in, the doctor's skin. Lister has recently declared that the effort to keep wounds absolutely germless is a failure; the laparotomists have come to entertain absolute contempt for the aërial germs which we were taught to dread so much some years ago; one of the greatest and one of the most successful of them scouts at the idea that water can do harm to wounds or to serous cavities, though it swarms with germs and spores. Yet in all this clash of statement and denial, no one has yet denied that dead organic matter is a nidus and a carrier of disease in some way of which we know nothing at this date.

It is now cleanliness rather than chemicals. The doctor's hands do not need to be benumbed, stained, decorticated or perfumed with coal-tar derivatives; they need to be clean. But, mind you, skepticism brings no repose. The obligation to specially prepare hands and other instruments for professional work is not lessened by our confessed ignorance of the import of the appearance of microbes in the seats of disease. On the contrary, our duty becomes more imperative as it becomes plain and imperative. Carelessness is manslaughter.

Travelers in Japan report that oftentimes they come upon four stakes thrust into the earth to sustain a cloth like a sagging canopy across a little stream. Flowers are placed upon the arrangement for decoration. There is a dipper at hand, always, and the Buddhist passer dips water from the stream and pours it upon the cloth. The act itself is a prayer and is supplemented by vocal prayers for the relief of some poor woman who died at the birth of her baby and who suffers in purgatory; and it is believed by pious Buddhists, of whom there are yet a few in Japan, that when the cloth has decayed so that the water no longer trickles but falls through it, then her sins have been expiated, have been carried away by the water running, and her purgation has been accomplished. This "Flowing Invocation" is a beautiful and a touching rite indicating the belief of the dear common people that there is swift relief for her who passes from earth freshly crowned with the honors of maternity. I could easily hold belief with our gentle and poetic Japanese neighbors, but I could not bring myself to believe that any device or ritual could in a million of years bring out of purgatory the soul of the doctor who by the poison of filthy hands sends trusting mothers to the shadowland in advance of him. The doctor's duty is so simple and so plain, nowadays — cleanliness is so conformable to gentlemanly and doctor-like instincts—filth and neglect of the hands are such

savage and murderous sins, that I am not ready to believe that the sweet mercy of the power above us will easily reach him who sins against light and knowledge.

Something like this may be said of wound-infection; something like this may be said of him who runs the risk of carelessly carrying the poison of specific diseases to little children; but let the fiercest anathemas be saved for him or her who professes to bring comfort and safety and brings the poison of puerperal fever to a trusting mother who needs to live for her baby.

Is it necessary for me to say in this connection, that science, sense, fashion and humanity all demand that the fingers shall be clean in all folds and duplicatures? Some of those whom we loved right well, and treated as well as we could, have gone over to join the silent majority and yield them to the microbic influences of the graveyard, and though we practice ever so wisely others will slip away from us and possibly be marked off our books, after satisfactory settlement by administrator or executor. But is this any reason why we should display the insignia of woe? Is it, to speak more to the point, any reason why we should wear mourning under our nails? If it takes time and trouble to clean the hands and keep them clean, it needs treble time and craft to attend to the nails. Epithelium and its accompaniments should be carefully and frequently removed from under them, and without gouging. A fold of the towel should be drawn under them at each washing. They should not be permitted to grow to an indefinite length. A doctor with great talents is one thing; a doctor with great talons is quite another thing. I am coming to the conclusion that there is not much merit in a knife or scissors for the shaping of the nails; a nail-file is the one thing needed, and for those whose nails are inclined to split after each trimming it is certainly a great comfort. But anything may be used except the teeth to bring the nails into shape. It isn't too much to say that

the doctor who bites his nails cannot possibly do a neat job. Moreover, I say, with deep emotion, he has no right to set my teeth on edge and make the bristles rise upon my back at the sight of his botchwork.

And may I be allowed to say further on this topic, that the nails should be attended to in private? The patient should be able to observe the artistic and satisfactory results of the doctor's manicure work, but need not see the very processes themselves. And may I be permitted to say still further, that while genial, intimate intercourse between physician and patient is conformable to the code of the American Medical Association, yet to sit on the patient's bed and practice the arts of the manicure is to be too genially familiar by fully fifty per cent.

It has occurred to many, and it occurs to me, to say that it is not worth while for a doctor to keep his hands in good order, with or without chemicals, if he has dirty gloves. The hands go in and out of the gloves many times a day in cold weather, especially if the doctor does his own driving, and, if not regarded, they must inevitably contain minute samples of organic matter from many besides and from the harness of the horse, or, in the case of two-horse doctors, from the horses. What can be done for the doctor's gloves? Well, in the first place, they should never be contaminated by hands that are soiled with organic material. I am far from being a pattern in this regard, but I sometimes wash my hands in the houses of several successive patients, and I sometimes drive to my office barehanded to avoid tainting the inside of my gloves. To be very scrupulous in this matter is to have gloves not very dangerous; for the dirt received on the outside of gloves, even driving gloves, is not likely to be very dangerous, and can be removed by alcohol, benzine or chloroform. The free dusting of the inner aspect of the gloves with boracic acid is commendable not merely because it is of use to the hands, but because it constantly dilutes

organic dust within the gloves, and is a sort of dry washing of their inner surface.

The care which has been prescribed to keep the hands and gloves free from organic matter needs to be doubled when that organic matter is known to contain seeds of specific infectious disease. To run any risk, even the slightest, of peddling these diseases about is to assume a great responsibility, and I confess that it is a responsibility which overwhelms me when I attend scarlet fever, puerperal fever or diphtheria. So far as we may, we should keep our hands off from these patients, and, going from their houses, we should go as clean as possible.

ICHTHYOL IN ECZEMA.

BY A. RAVOGLI, M.D., CINCINNATI.

It happens not rarely that a discussion arises for the only reason that the participants do not understand each other. All are perfectly right, each one says about the same thing, yet on account of the different expression given to the same subject they fail to come to an understanding and the discussion goes on, each remaining with his own ideas. This is what has happened in dermatology in these last years in regard to eczema. It is, therefore, my duty before entering into the argument to say a few words on the meaning of eczema, so as to make clear the following remarks.

The idea of Willan, to comprehend under the nomenclature eczema all acute inflammations of the skin characterized by the presence of vesicles, and accompanied with burning and itching sensations, does not answer the exigencies of the present dermatological knowledge. Neither did E. Wilson improve the state of the question, when, leaving the idea of the presence of the vesicles as the elementary form, he called eczema any chronic inflammation of the skin accompanied by desquamation, exudation and itching.

Hebra's definition of eczema was like the Rhodes Colossus, but the changes in the dermatological doctrines, the new bacteriological discoveries, have shaken even this rock, and it was obliged to follow the irresistible current of progress.

We could take away entirely the word eczema, which is nothing else than a conventional word established by long use, void of sense. It comes from the Greek ἐκζέω, effer-

vesure, and is found at first in the writings of Ætius from Amida and Paul Agineta, without any definite meaning, and it is necessary to come to the time of Willan in order to find a precise signification of this group of diseases of the skin. On account of its long use, as said, this word has been respected until now, and it is found at the head of every dermatological treatise.

We begin to get some light from Auspitz(1) when he wrote that the typical hyperæmias of the skin belong to the same inflammatory process, and in substance they are not different at all from the exudative processes of Hebra, the difference being only in degree; the exudation and the alteration of the elements of the tissues in the first is not so apparent as it is in the second. A traumatic erythema has just the same process as an eczema traumaticum. The heat of the sun causes sometimes an erythema, other times a caloric eczema. The difference between the hyperæmias and the exudations therefore disappears, and it remains that calor, rubor, termor, and dolor, the four characteristics established by Celsus for the inflammation being present in both instances; and therefore both remain nothing else than inflammations of the skin.

The inflammation of the skin ought to be called dermatitis, if it is true that an inflammatory process of the lungs or of the stomach is called pneumatitis and gastritis. But on account of the word dermatitis, used by Hebra to signify a deep inflammation of the corium and of the subcutaneous tissue, in opposition to the superficial inflammations, which he called erythematous, eczematous, phlyctenoides inflammations, the word dermatitis was abandoned, and the name eczema remained to signify any superficial inflammation of the skin.

By analogy the superficial inflammation of the skin can

1 "System der Hautkrankheiten," Wien, 1881.

be compared with the superficial inflammation of the mucous membrane, so that this eczema or superficial dermatitis would be nothing else than a catarrhal process of the cutis. This is indeed the definition of eczema and erythema given by Auspitz, with the difference that in the first there is free exudation of serum or pus and none in the other. It is the idea of Unna(1) to call eczema catarrh of the skin, which he thinks due always to the presence of micro-organisms. The inflammations of the cutis produced by chemical or physical causes he would distinguish entirely from the type eczema, and call the last only dermatitides.

In the present condition of dermatology it would be a difficult task to establish definite types of dermatitides based only on the etiological point of view, although it will not be long, I believe, before this will be the only classification, and the therapeutic means then will be more precisely applied to the single form. L. Brocq,(2) in his "Origin of Eczema," very wisely suggests to have taken out from the group eczema the artificial dermatitides, which we usually call dermatitis venenata, but I think he will never refuse to call eczema a form of catarrh of the skin, which may result as a consequence of a dermatitis venenata. Every one of us has met with cases of some patient who, in consequence of using aniline-dyed underwear next to the skin, or by applying some patented liniment for rheumatic pains, or by handling some irritant fluids, has got dermatitis venenata. The skin is red, swollen, covered with small blisters, accompanied with burning and itching sensation. No one of us would call this form an eczema, but we all say that this is a form of artificial dermatitis. Now, suppose that after the swelling has disappeared, the burning pain has stopped, the vesicles have dried up, the epidermis around the fingers is not normlly formed,

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1 *Monatshefte für Practische Dermatologie*, 1889, p. ix, No. 1.

2 *Semaine Med.*, 1891, No. 58.

dries up in scales covering excoriations from which, at times, oozes out some serum, the same epidermis being infiltrated and hard cracks forming fissures, with itching sensation, etc., what will he call this form?

The time allowed to me does not permit me to enter into a discussion as to whether that resulting eczema finds its origin in micro-organisms contained into the serum or seropus which oozed out from the vesicles of the preceding dermatitis, or if this condition is rather to be considered as the result of some diathesis in the general system of the patient. I would rather be inclined to consider this form of eczema as the result of the presence of micrococci, staphylococci, which find good ground for their development in the layers of the epidermis, in the same way as they do in the follicles of the hair in sycosis. We see every day eczema in any part of the skin where pus or muco-pus remains for some time either from neglect of cleanliness or from the peculiar anatomical form of the region.

In this regard I would agree with Unna, that eczema is a catarrh of the skin, whose origin has to be found in the presence of parasitical organisms. In the same way the seborrhœal eczema, which we often find in children, starting from an abundant seborrhœa of the scalp and extending on the ears, forehead and cheeks, and sometimes upon the shoulders and upper arm in the form of dry, scaly and fatty plaques, can find its place in the same family of eczema.

We cannot take for eczema some kind of superficial dermatitis, which affects the skin suddenly in the form of papules with some swelling of the affected region. This form of eczema often affects the cheeks and the chin of children at the time of dentition, quite often recurs with each new tooth. The same form of eczema in a papular or erythematous form, sometimes ending in the formation of vesicles, we find to affect the adults suddenly, and often relapses. The way of breaking out of this kind of eczema, which resembles

the zoster, shows it to be the result of some disturbance of the vasomotor nerves, and therefore has been called nervous eczema. We have found attacks of this eczema follow dietetic errors, the abuse of intoxicating liquors, smoking tobacco, and also after strong moral impressions. Another kind of eczema cannot be forgotten, and this is the eczema pruriginosum. It results from papules scattered on the skin, very seldom humid, usually the papules are covered with dry scales, the corium is hard, infiltrated; as it is very itchy so the skin is wounded with abundant excoriations.

In mentioning these varieties of eczema it was my purpose to show the different kinds of eczema in which the remedy ichthyol, the main point of my subject, has been useful in its applications. There is no disease where the therapeutic applications are so different and so numerous as in eczema. You will allow me to select a few cases from my case-book, and report them as briefly as possible.

CASE I.

Mrs. C. W., Cincinnati, for eighteen months in bed, has been afflicted with eczema of both legs and feet. She was a lady sixty-five years old, and thin, of a nervous and irritable temperament. Her skin was dry and panniculus, adiposus scanty, hair scanty and gray. Eczema started from varicose veins, and had involved the whole leg, extending above the knees. The surface was intensely red, the corpus Malpighi entirely uncovered, and the papillæ could be plainly seen like dark, red points. The epidermis formed large, hard scales, partially adherent to the surface, from which serous fluid was abundantly oozing. The pain and the burning sensation was so severe that the lady could not sleep, and the appetite was very poor. She was begging for relief or death. In order to get some relief she used to put her legs in a bucketful of cold water. She had a perfect horror of any greasy stuff, especially salves, stating that every time that she applied one it was worse than fire.

I was called under these circumstances. My first external application was ichthyol in the form of liniment, 2 per cent. strong, mixed with glycerine, rose water, sweet almond oil and lime water. This I ordered to be applied twice a day on English lint, covering all with raw cotton. This had a wonderful effect on the sore surface. The scales easily loosened, the redness diminished, the serous discharge grew less, the papillæ began to appear slightly covered by some epidermis, and the burning sensation was greatly relieved. I kept on with this liniment pretty nearly for the whole treatment, and at the end some salve of benzoated oxide of zinc finished the treatment.

CASE II.

A babe, eleven months old, had eczema of the whole face, head and arms. A beautiful, well-nourished babe, in splendid general health, from healthy parents, got the eruption. It appeared when it was four months old. The eczema had a papular appearance, spread on both cheeks, chin and ears. The head showed scattered pustules covered with crusts, but no sign of seborrhœa. The itching sensation was very great, as the child could not be prevented from scratching.

A liniment of ichthyol, 2 per cent., was applied with a camel's-hair brush twice a day; the itching soon diminished, and in a few days the improvement was remarkable. The treatment was finished with a salve containing tar and the recovery was complete.

CASE III.

Mrs. E. D. R., Cincinnati, for six months was suffering with universal eczema. From head to foot she was covered with the eruption, the face was full of excoriations partially covered with epidermic lamellæ, oozing serum, with deep fissures around the lips and eyelids, the auriculæ were all sore, the neck was the same. The chest and the back was covered too by the eruption mostly papuls encorutiens and all full of epidermic scales. Around the breast the eczema

took the characters of eczema rubrum, discharging a large quantity of serum. Around the genitals and the thighs to the knees, was the worse. The epidermis was completely gone, the corpus Malpighi was exposed, showing the papillæ, and the serum oozing out was in such amount as to wet the cloths and the bed linen. Itching and burning sensation was so terrible that the lady could not lay in bed, could not sit and was in a distressed condition generally.

My first resort was to ichthyol, in the same form of liniment, 2 or 3 per cent. stong, packing afterward with cotton. The result was admirable, the lady began to have rest, the epidermis began to cover again the raw surfaces, and in a short time I was able to apply different salves, and in about three months she had fully recovered.

CASE IV.

Mrs. A. W., German by birth, for a long time has suffered with recurrent eczema (nervous eczema) affecting both eyelids and the supraorbital region, descending to the nose and cheeks. The attack came suddenly in the best of health, entirely unexpectedly. It began with redness and swelling of the tissues like erysipelas. In a few hours the surface was covered with vesicles, which easily broke and discharged large quantities of serum, moistening the whole face. After some days the swelling and the redness disappeared, leaving little excoriations covered with light scales, and in a short time all returned to the normal condition. In the moment of an attack the lady called on me, and a liniment of ichthyol, 6 per cent., was applied, and ichthyol internally in the dose of thirty drops a day was prescribed. In a few days the eczema had completely healed up, but the most interesting feature is that since two years she has had no more attacks.

CASE V.

Mr. F. S., Covington, Ky., had eczema of the legs for a long time. He was fifty-six years old, a retired manufacturer, in splendid health, presenting some varicose veins and

scattered ulcers of the legs which explained the origin of eczema. The skin was hard, thick, inelastic and infiltrated, he could not walk on account of the difficulty of moving his limbs from the infiltration of the skin. I prescribed unguent. diachylon Hebræ containing 4 per cent. of ichthyol, to be spread upon a cloth and applied twice a day. The sore in a short time healed up completely, the itching sensation in a short time had completely stopped, the infiltration disappeared; a salve containing some tar finished the treatment.

REMARKS.

From the above mentioned we can see that the cases one and three were cases of eczema rubrum accompanied with great inflammation of the skin. The cases two and four are cases of nervous eczema, and the case five is a case of eczema from stasis on account of the difficulty of the circulation of the blood in the capillary vessels. In all of these cases and in a great many others ichthyol has been of great benefit by local application and also by internal use. Ichthyol was placed by Unna among the reducent remedies (*reducentia*) on account of its property of diminishing the hyperæmia. H. Hebra(1) maintains that the efficacy of ichthyol must be found in the carbon combined with sulphur. We believe that the faculty of oxydation possessed by ichthyol is the cause of its action. It appropriates the oxygen of the young epidermic cells and cornifies them, and this is the reason why we see in a short time, like in cases one and three, the naked corpus Malpighi and the bare papillæ covered again by a light stratum of cornified epidermic cells. When the papillæ are covered again, the pain is bound to diminish. Furthermore, we find in ichthyol an astringent action on the capillary blood-vessels, which causes the hyperæmia to diminish, and in consequence the exudation of serum stops. A kind of analgesic action is also displayed on the last

1 *Zeitschrift für Therapie*, No. 16, 1890.

nervous ramifications by ichthyol, as we see that the pain and the pruritus are greatly benefited by its application.

I think that the same action on the last nervous ramifications must be considered as the main point for its beneficial action in nervous eczema.

How about its internal action?

I have given pure ichthyol internally mixed in some tea, in the dose of from thirty to sixty drops a day. The patients in the beginning complain somewhat on account of its bad odor, but after a few days they do not mind it any more. I found always that the appetite increased, and it never caused any diarrhœa, but, on the contrary, it has produced in some cases slight constipation. I could never discover any change in the urine, neither in color nor in its chemical quality, but on boiling the urine the odor reminds one of ichthyol. There is no doubt that ichthyol taken internally has given remarkable results, helping a great deal the external application. In some cases I used either no internal medication, or only some mild purgative mineral water, and, in spite of the external medication the eczema remained obstinate, but after a few days of internal use of ichthyol I could see a perceptible change in the appearance of the affected surface.

Before closing, I must say that ichthyol did not give any satisfactory results in seborrheal eczema, which was beneficially treated by the aid of resorcin. Ichthyol can be used in any form of vehicle, as lard, vaselin, lanolin, glycerine, water, collodion, gelatine paste, and the strength I think must be regulated according to the case and to the endurance of the patient. The same formula which has been beneficial in one case, sometimes acts as an irritant in another. Therefore it must be carefully regulated to the single cases.

It is my duty to mention another remedy, much like ichthyol, found by Dr. Emil Jacobsen, of Berlin, and called thyol, which is claimed to have the same properties as ichthyol and to be much cheaper. Although Reeps, in his

pamphlet on thyol and ichthyol, maintains that using them in the same patient on one side of the body thyol and on the other side ichthyol, no difference could be perceived, Max Lange states that the difference is a remarkable one. In the clinic of Prof. Hoffmann in a large number of patients ichthyol was used on one side and thyol on the other, and it was found that the action of ichthyol was much more successful than that of thyol. In one case the recovery was obtained with ichthyol in five days; under the use of thyol it came only after twelve days of treatment. Lange refers, too, that having accidentally scalded his hand, he applied a salve of lanolin and thyol, but failed to bring any relief from the pain, which was easily relieved in a permanent way by using ichythol in place of thyol.

In conclusion, I would say that ichthyol is a valuable acquisition in the treatment of eczema.

MUSIC IN MEDICINE.

BY CHARLES H. MERZ, M.D., SANDUSKY.

That music is deserving of a place in our materia medica we cannot deny. Yet music has her own materia medica, and it has been said, that while there may not be much music in medicine, there is a great deal of medicine in music.

There is but one universal language that is expressive of the ideas, feelings and sentiments common to all mankind, and that is music. It binds us to every created thing. Aside from its value as an art, it is, and has always been, one of the greatest civilizing agents. It has gone hand in hand with religious and traditional beliefs. We cannot cite a nation that has not had its religion, nor can we cite one without its music. We are told that David played before Saul, and that he drove away the evil spirit, and, from the beginning to the end, the Scriptures dwell upon the powers of music.

What art, save music, follows man into the depths of misery and insanity? When the consciousness of the individual's danger, for the first time, dawns upon him, and the terror and agony of the moment stuns him; when, every hour, he realizes that he is unequal to the conflict of mastering himself—nothing soothes and comforts him as do the strains of sweet music that seem to promise calm to his weary heart. In our hospitals for the insane we may find patients, lost to every other sense and emotion, performing quartettes and quintettes to a degree of perfection that rivals professional musicians. I believe that every one who has had

occasion to observe the fact, will acknowledge that music is a powerful agent in our insane hospitals, and that when all other means of quieting fail, patients will often yield to music.

The beneficial influence of music over the sick is not a fancied one. Its influence upon the nervous organization and the temperament of man has not been sufficiently studied by medical men of the present day. The reason why we do not attach sufficient importance to it as a means of combating crime and disease, and the consequent effects of heredity, is that we do not recognize in music an anodyne, a nerve soother, and also the means that may be used to elevate the general moral, social and physical standing. Of course, as with every other agent, the beneficial results are largely governed by the age, sex, and temperament of the individual, and by the character of the music.

"From the moment that the little infant is lulled to sweet sleep by its mother's song, through childhood's happy hours and the time when love's impulse finds its first expression in song, to the time when night is about to close in upon our earthly career, music is with us, and we part with it then only to take up the unfinished strain in the great beyond, where, we are told, there is one eternal song of praise."

The relation between music and medicine is not difficult to trace, but any attempt at comprehensiveness in such a subject would be impossible. From anatomy we learn of the wonderful structure of the human ear; of the three thousand extremely minute fibres that are the termination of the acoustic nerve; cortes fibres lining the membranous part of the diaphragm, each tuned for a particular note as if it were a small resonator. When the vibrations of any particular note reach these fibres, through the intervention of the stirrup bone and the fluids, only one fibre or set of fibres vibrates in unison with this note and is deaf to all others. These little microscopic fibres analyze the most complex

ones, and reveal their constituents. Music pervades all nature. The successive auricular and ventricular contraction and period of relaxation comprise what we are pleased to term the rhythm of the heart. There is also a rhythmic action of the lungs which is mysterious, and hints of much that is unknown.

Perhaps one of the ablest authors upon this particular subject is Dr. Chomet. He claims that there is a musical or sonorous fluid similar to electricity, light, and heat, and that this fluid impregnates almost all bodies, and that it is developed by friction, blows, or chemical decomposition. The power of music over the animal creation is well known. The allusion to King Saul's troubled spirit might be followed by mention of the fall of the walls of Jericho, and the order of Elijah to blow trumpets, when he called down the spirit of God.

It will not be out of place, perhaps, to cite a few instances of the effects of music upon different individuals. Gretry said that it made his heart really beat faster. Berlioz's whole being vibrated when listening to music, expressing it as he does: "My blood circulates more quickly, and my pulse beats faster." It is said that the English army, after partial defeat at Quebec in 1768, turned, and was led to victory by the music of the Scotch pipers. A German historian declares that the "Marseilles" caused the loss of fifty thousand German soldiers. It is said that Mehlbrau was thrown into convulsions upon hearing "Beethoven's Symphony" for the first time. Rousseau relates the case of a woman who was thrown into violent laughter when hearing music. Paulinus tells of a man who invariably vomited when listening to music.

The general character of ancient music is too little known to admit of attaching much importance to the reports of early writers. As early a writer as Bagliri says that "if physical exercise, such as walking, be impossible, let the patient sing

or speak freely." Incredible as it may seem, Bonnet mentions cases of gout being cured by singing. Lourages relates the case of a man suffering from an intermittent fever, whose depression could be relieved only by the sounds of a drum. Roger has recommended music as a cure for phthisis. Voltaire's *bon mot*, that the opera was designed to promote digestion, would seem to be supported by the common custom of having music rendered during meals. The records of the Academy of Sciences are filled with reports of seemingly incredible cures effected by the aid of music.

"An illustrious musician and composer was attacked with fever which constantly increased in violence. On the seventh day he lapsed into a violent delirium, accompanied by cries and tears, and by expressions of terror and lack of sleep. One day he asked for music, and with many misgivings the physician consented. As soon as the patient heard the sweet strains he became calm, his eyes assumed a quiet expression, and all convulsions ceased. While the music continued he shed tears of joy and the fever left him; but no sooner had the music ceased than he relapsed into his former condition. Music was therefore continued, and after this plan of treatment had been followed for several days the patient became well."

Dr. Chomet says that he witnessed a case of a physician suffering from an apoplectic attack. He was the first to prescribe for him, but the medicine had no effect. Half of the patient's body was paralyzed, and it was with difficulty that he spoke. After some little improvement he asked for the privilege of hearing some music, having all his life been fond of that art. His request was granted, and with great benefit.

What one of us, when tossing feverish and sleepless, has not been quieted and refreshed by some favorite strain of sweetest music?

A proper realization of the true source of the voice and its strength cannot be over-estimated. Too few of our public

school pupils learn how to command the lower part of the lungs and the abdominal organs in utterance, and they use these organs to disadvantage. The lower muscles of the body are important from a hygienic point of view, and they are strengthened by vocal exercise. By early attention to the voice of the child much physical strength can be obtained; the chest can be developed, and by judicious vocal exercise a strong and lasting foundation laid, and a proper method of breathing established.

A new era is dawning in our education, with regard to voice culture. Pure quality of voice comes from the combined and harmonious action of all the vocal parts, and is marked by a smooth and commanding resonance. It is well to bear in mind the fact that a vigorous and flexible tone can only be produced by a vigorous and flexible body, and these are dependent upon exercise. This, of necessity, involves the supply of oxygen to the system; the relief to the system of waste and useless matter; the development of the inter-costal muscles, rendering the lungs more capacious and flexible; and the development of symmetry and comeliness to the whole body.

Exercise is a condition of health and strength, as absolute as food and air. Weakness, vocal and respiratory, begets weakness, and a diminished lung power impairs the general and physical health. Let it be borne in mind that a well-developed voice imparts dignity and force to every relation of life. Largely as the voice is pleasing will we render our influence effective and agreeable. The proper and regular use of the voice implies the proper development of the lung and chest capacity. Voice is the product of a physical mechanism as properly and as well defined as the muscles of the arm or the tissues of the brain. The proper use of the voice in the production of musical sound implies the proper habits of respiration; healthful exercise of the throat and lungs; the proper use of the inter-costal muscles; the stimu-

lation of circulation, and so the organs of digestion and the entire physical system. There is no other exercise that will so call forth the natural and uniform action of the whole system.

Our public schools fall short in the development of the child's emotional and imaginative faculties. Music, more than any other agent, awakens sentiment. It should in this sense have a prominent position in home-life and school-life. It is a social art. As a profession striving for the common good, we need and should employ every agent that advances culture and refinement. We should use music as an agent for lifting us out of our routine life, to awaken sentiment and a comprehensiveness of the beautiful, and to harmonize the outer and the inner man. Music can never detract from the physician in the field of his profession. The performance of music may not arouse the lost faculty of reason, but can we name a therapeutic agent that will? It is often suggested to one that the strains of music paint, to these poor insane sufferers, this world in its softest tints, and recalls the ambitions of the past in contrast to the emptiness, the hopelessness of the present.

Good music never fails to exercise an influence for the good. It is the language of the emotions—of the heart. Its true spirit unites and controls humanity. All art is pure, and as such, it is elevating and refining. Everthing that calls into activity our spiritual natures is intellectual, and music does this to a marked degree. Of its true inward nature we are ignorant, yet it is so simple, so easily understood and so readily felt. Its influence is eternal. The little snowflake, that, in all its purity and beauty, falls in the ocean, is melted instantly, and, so far as our eyes are concerned, has vanished forever. Yet the little drop of sweet water it contained, has helped to sweeten and to increase the immense body of water into which it has been absorbed. So the intelligent hearing of good music cannot be without

some lasting influence, be it ever so feeble, or ever so completely hidden. Every beautiful idea, be it expressed in marble, in color, in word or tone, comes of necessity from the one source of the beautiful—above; and is it at all reasonable to suppose that such influences are merely transitory in character? It cannot be!

THE TREATMENT OF ACUTE ŒDEMA OF THE LARYNX.

BY AUGUSTE RHU, M.D., MARION.

In order to call your attention more closely to this dangerous laryngeal affection, I may be pardoned in giving the history of a case, just recently occurring in my own practice, *in extenso:*

Frank Johnson, aged thirty-six, a hotel and livery manager, of strong, robust physique, short stature, short neck, and an abundance of *panniculus adiposus*; height five feet six inches, weight 160 pounds. He had an attack of la grippe, complicated with a moderately severe acute croupous pneumonia involving the left lung; in six days he was convalescing finely, when he left for his place of business, and remained the greater part of the day away from home. I had told him to remain indoors for a week or more on account of the unusual depression and debility, especially so as he was very susceptible to taking cold, and had had frequent attacks of pneumonia. On that day he got wet feet and contracted a severe cold, affecting his throat.

On the evening of February 12, 1892, I made my first call, and prescribed for the sore throat, which presented following: a husky voice, cervical and submaxillary glands swollen and painful to touch, deglutition causing pain running up into the ears and angle of the jaws; the mucous membrane of the oro- and naso-pharynx was highly inflamed, and flannel-red in appearance, especially so over the palato-glossus, and pharyngii muscles and uvula, which were quite œdematous

and tender—so much so that a thorough laryngeal and rhinal examination could only be conducted with considerable trouble, so tender was the pharynx. The following morning I found my patient no better; in addition, however, I found the posterior wall of the pharynx œdematous, the posterior pillars of the pharynx extremely inflamed and œdematous, the voice painful and veiled, with a tendency to hawking, and the patient stated that he was affected with great fear. An invasion of the mucous membrane of the larynx was already in an active state of inflammation, so that on the evening of the second day I had a moderately severe laryngo-pharyngitis, complicated by a retro-pharyngeal abscess-formation behind the œdematous posterior pillars of the pharynx, involving the left side mostly; this, in addition, causing still more difficulty in deglutition, and interference with nasal respiration, compelling him to breathe with his mouth open and head thrown back, while complaining much of the lancinating pains shooting up into his ears. The pulse was weak and easily compressible.

Thus far the treatment had consisted of antiseptic sprays and gargles, slight anodyne, complete rest in a warm room, with inhalations of moist vapor impregnated with tincture of benzoin compound, and salines every morning. On account of the great systemic depression I gave the vaso-motor stimulant of strychine and belladonna for effeet, as required in his case. On Sunday morning, the third day of his illness, I found him no worse, and told the family that all was progressing favorably thus far, and that I would expect a spontaneous rupture of the retro-pharyngeal abscess during the night, and thus bring all the depressing symptoms to an end; should the abscess fail to rupture spontaneously, I would have to aspirate the same the following day. At any rate I regarded my patient in a fair process of cure, barring further complications of the oro-pharynx, or rather larynx.

The following morning, Monday, February 15, about

9:30 o'clock, to my surprise beyond expression, I found my patient fully dressed in his business suit down in his sitting-room, where he had ordered the furnace heat turned off and consequently had a chilly room. He said he had passed a poor night. On examination I found I had a dangerous and rapidly progressing case of acute œdema of the larynx. The retro-pharyngeal abscess was still unruptured. Pulse 120; temperature 99°; marked difficulty in respiration, due to partial laryngeal stenosis. He said he was very nervous; feels chilly, but strong enough to dress himself and walk down stairs and about the room. On inspection the pharynx was found œdematous to its utmost extent, the mucous membrane presenting a dark cherry-red color. I told him to remain quiet, saying that I would return to my office and procure a laryngeal lancet and a retro-pharyngeal trocar and return shortly. While in the office gathering the apparatus required for the case, I was hastily summoned, being informed that something had broken and that he was nearly dead. In less than five minutes I was again at his side; he was just then feeling somewhat better, and told me that something had ruptured in his throat. I encouraged him and assisted in wiping away the pus and mucus which was rapidly filling his mouth, myself feeling much encouraged, when he suddenly fell over in his chair in a semi-soporous condition. I at once sacrificed the œdematous aryepiglottic fold—in fact, the laryngeal introitus was closed. In another minute he revived again, only to fall dead from his chair, and all this in less than ten minutes' time. No time for intubation, and an emergency tracheotomy could not possibly have been done; no artificial respiration nor any other surgical or medical means known were of any avail at this trying moment.

Within a week of the above fatal case I had two other cases of acute œdema, one in a lady fifty years of age, as the result of a moderately severe case of catarrhal inflammation of the pharynx, descending to the larynx, when I again had

a case of acute laryngitis secondary to a pharyngitis. The patient was a chronic asthmatic, and considerably debilitated from a previous attack of la grippe, and an aural catarrh a sequela of the grippe. In this case the treatment was uneventful and successful, in spite of a very severe œdema of the glottis and the ary-epiglottic ligament. Hot soda and antiseptic gargles, moist vapor inhalations, antiseptic sprays and pilocarpine (one-eighth grain) hypodermically caused all laryngeal stenosis to disappear within less than an hour.

The third case was a very grave one, and under very trying and unfavorable conditions. A young Miss, twenty years of age, possessed of a very fine physique and splendid resisting power, began, as in the two cases noted, with a catarrhal inflammation of the pharynx, and on the second day complicating the larynx, with œdema developing so rapidly that I expected it to have an unfavorable turn. In addition to the above local and constitutional treatment, I again gave a hypodermic injection of pilocarpine, which saved me the patient in less than ten minutes. In as many minutes I had the full physiological effect of the pilocarpine, the sialagogue effect being wonderful, and acting more specifically to evacuate and drain the œdematous larynx than any scarification could possibly have done; the diaphoretic effect was not so great. In fifteen minutes a slight cardiac depression set in, which, however, did not become dangerous, and was successfully combated by belladonna and strychnine.

COMMENTS.

In the first case the œdema was no doubt a form of solid œdema, which did not subside post-mortem. The laryngeal stenosis was complete, and no doubt, had a post-mortem examination been granted, we should have found, further, a sub-laryngeal œdema. Such cases, as a rule, are fatal. Intubation or tracheotomy could not have been thought of in the few minutes remaining, and, under such a complication of a

retro-pharyngeal abscess, I felt confident that an emergency tracheotomy would have been a useless procedure.

Bayles' statistics of tracheotomy in acute œdema are not at all encouraging in this disease, for in seventeen cases where tracheotomy was done one recovery is recorded. Sestier's statistics are, that out of 213 acute œdema cases 158 proved fatal, in spite of tracheotomy having been performed in thirty cases. Glascow also reports two cases of solid œdema of the larynx; both died suddenly, and on post-mortem examination laryngeal stenosis was found, the œdema not subsiding post-mortem. In the Surgeon-General's office, U. S. A., we also find four cases of œdema as the cause of sudden death (J. H. Bryan, M.D.).

My cases were all cases of pharyngitis primarily, secondarily directly due to the extension from the pharynx downward, involving the larynx, extending to the epiglottis and aryepiglottic folds, and were sequelæ of la grippe. The fatal case, no doubt, was complicated with œdema below the larynx, and of the solid kind. Each case was also bilateral.

The observation that œdema of the larynx is occasionally due to an inflammation extending downward from the pharynx has been frequently made by Feiber, Bryan, and other equally competent observers. All laryngologists agree that acute œdema of the larynx is an extremely dangerous disease, and frequently sets in with such suddenness that no warning is given and the patient dies before aid can be rendered.

This paper is not concerned with the diagnosis. The symptoms of laryngeal stenosis in connection with the dyspnœa are so easy of recognition that the merest tyro of medicine can have but little difficulty in recognizing it.

The best statistics I am able to consult and have had access to still give, with the best modern treatment by specialists, a mortality of 35 per cent. All statistics further

agree that the disease is a most dangerous one, and more fatal to men than to women, the greatest mortality occurring in cases between ten and forty years of age; also that any sudden chilling aggravates the laryngeal œdema—*e.g.*, to go from the sick-room into a chilly one seems extremely dangerous, œdema being also caused by drinking ice-water when the patient is in an over-heated state.

In the management of a case of œdema of the larynx I would first and always recommend complete rest to the larynx and pharynx; breathe or inhale the vapor of hot boiling water impregnated with tincture of benzoin compound, or lime water vapor; hot soda gargles, with antiseptic gargles and sprays of cocaine solution, and slight astringents; scarification of the œdematous parts with the laryngeal lancet, aided by the laryngeal mirror; after the scarification gargle with hot water, which facilitates the expulsion of the fluid. If, in spite of all treatment and scarification, the œdema should continue, intubation or even tracheotomy could be done, although the statistics are unfavorable; these measures may not be successful if the œdema be of the solid variety; intubation is still on trial, although it has been successfully practiced in a few cases. In my opinion the one great remedy outranking all others in this dangerous disease is the hypodermic exhibition of pilocarpine. Gottstein seems to be the one who employed this remedy first, and only a few months ago a number of successful cases are reported by foreign observers. Pilocarpine will hasten the absorption of the œdema and prevent its recurrence, and in this particular disease is the one great remedy to carry in your hypodermic case. Another treatment, advocated by Dr. Boris I. Kotelansky (who tried it successfully in severe cases where tracheotomy was refused), consists of the application of cantharides emplastrum to the neck and inhalations of hot steam vapor, with a 2 per cent. solution of alum. In place of the emplastrum, he also applied the same successfully in

the form of collodion to an infant suffering with extreme laryngeal stenosis.

Dr. James I. Tucker. of Chicago, Ill., reports a case of laryngeal œdema due to toxæmia complicated by œdema of the arm. He treated the case with potassium bicarbonate in full doses, with the hope of dispersing the œdema, without the desired result. Dr. Waxham inserted a tube; tracheotomy was considered unnecessary and scarification ineffectual, hence intubation was done. The case proved fatal on the second day after intubation.

Another fatal case occurred quite recently with alarming suddenness in Chicago, when the distinguished patient, Judge Driggs, dropped suddenly dead at his wife's and the attending doctor's feet, without any warning whatever, while under the care of a leading specialist.

One of the leading laryngologists of America recently told me of a case where he relieved the œdema by scarification, and cautioned the patient not to be without a vigilant attendant, which he, however, disregarded. He went to sleep and later on was found dead.

Gentlemen, I have no doubt you can report cases similar to these. The general practitioner will necessarily meet with most such cases, and if he but remember pilocarpine he will feel that he can safely and speedily relieve laryngeal œdema successfully.

HOME-TREATMENT OF PAROXYSMAL INEBRIETY.

BY L. B. TUCKERMAN, M.D., CLEVELAND.

The asylum-treatment of paroxysmal inebriety gives as good and as speedy results as we can reasonably expect in such a disorder. After from two to six weeks of rest, nutritious diet and appropriate medication our patients return home as near cured as they can be, *i.e.*, cured so long as they let every form of alcoholic stimulus severely alone. But there is a large class of cases who cannot avail themselves of asylum-treatment because they can ill-afford either the time or the outlay—clerks on small salaries, mechanics, etc. These come to the general practitioner for relief, and, where there is an earnest desire on the part of the patient to get the better of his infirmity, or where his friends stand ready to enforce the necessary decipline, fully as good results can be attained by home-treatment as by sending the patient to an asylum.

It is now generally conceded by the medical profession that paroxysmal inebriety is one of the protean manifestations of neurasthenia, and is to be treated on the general principles that obtain in other severe forms of nervous exhaustion, viz.: *rest, tonic medication, and forced feeding.* I therefore insist on rest in bed and on easily digestible liquid nourishment at short intervals and in abundant quantity. Liquid nourishment has this further advantage that it promotes excretion far more than does solid food. Whenever possible, the patient should have the attendance of a skilled nurse; the dura-

tion of treatment may be thereby shortened, and less medication is necessary to tide him over the trying period during the first two or three days of confinement, and during which it is not wise to leave him alone for a moment, owing to the tendency toward profound mental depression, often verging on delirum. It is a mistake to allow the patient liquor; it takes just so much longer to put him on his feet and just so much more drugging to get him over the effects of it.

The chief drugs which have been found to possess special value during the paroxysm are: *atropia*, *pilocarpine*, *terchloride of gold*, and *strychnia*. Atropia, more than any other known drug, seems to have the power of satisfying the "craving." To accomplish this result it must be given in doses large enough to produce its full physiological effect; as a patient who had insisted that he "must go out," and that he "could not stand it any longer," remarked in five or ten minutes after a full dose: "I feel as if I had about half a dozen stiff drinks down." But atropia does more than merely satisfy the craving for liquor; it also stimulates the liver to action and promotes secretion along the intestinal tract and by the kidneys. Nevertheless, the less medication the better, and where a good nurse is in attendance, one who combines tact with firmness, we can commonly get along without atropia. Pilocarpine causes prompt elimination through the skin and intestines. Where the craving is not too intense, the subcutaneous administration of from one-eighth to one-quarter of a grain of the muriate, followed by a cup of strong, black coffee, will often serve to enable the patient to control himself. Strychnia, likewise, while acting chiefly as a nerve tonic, spurs up the liver, the pancreas, the intestinal tract and the kidneys to increased activity. It gives more satisfactory results when combined with pilocarpine. Terchloride of gold, one of the most efficient remedies we have for the relief of nervous dyspepsia, which, by the way, is usually a marked feature of the paroxysm, also acts

promptly and powerfully as a stimulant to the liver, the intestinal glands and the kidneys. So much for the drugs. It will be noted that they have one feature in common—they are all active eliminants.

The details of the treatment I have found most effective are as follows: The patient is put to bed and given subcutaneously $^1/_{20}$ gr. of terchloride of gold and sodium and $^1/_{20}$ gr. of sulphate of strychnia, and a mixture is left containing to each teaspoonful $^1/_{80}$ gr. sulphate of strychnia and $^1/_{50}$ gr. muriate of pilocarpine, with directions to give a teaspoonful once an hour. Milk is ordered three times a day, at the usual meal times, and meat broth, seasoned to taste, half a teacupful to a teacupful every hour, and oftener, if he wants it. He is also allowed strong, black coffee freely, and as often as he likes. Every three hours, until his bowels move, he is given a powder containing $^1/_5$ gr. calomel, $^1/_{10}$ gr. powdered ipecac, and 1 gr. sodium bicarb. In twelve hours the dose of terchloride of gold and sodium is repeated, subcutaneously. If the patient prove intractable and ugly about submitting to the necessary restraint, and going out against orders, which is very apt to be the case where his family is unable to avail itself of the services of a skilled nurse, the terchloride of gold should be supplemented by another hypodermic injection of from $^1/_{80}$ to $^1/_{15}$ gr. sulphate of atropia in combination with from $^1/_8$ to $^1/_4$ gr. sulphate of morphia to lessen the disagreeable symptoms. If the attempt be made to give the gold and the other drugs together, the gold will be precipitated. By the third day the appetite usually begins to return, and easily digestible solid foods, such as rare-done beef-steak, etc., may be allowed. The patient may now be also permitted to dress himself and sit up a little while at a time, but not to go out, however; he should keep his room for three or four days. Once a day will now do for the hypodermic of terchloride, and even before this it will ordinarily have been found unne-

cessary to continue the atropia. The hypodermic is better given toward night, as the terchloride seems to exert a mild sedative action, promoting sleep. The proportion of solid food is increased by degrees, and the frequency of medication by the mouth diminished. At the end of a week's time the patient can commonly return to his usual avocation in fair condition and free from the craving for liquor. He should, however, continue treatment another week, taking about $^1/_{40}$ gr. of strychnine every three hours, and coming to the physician's office daily for his hypodermic of terchloride of gold. He should be plainly told, however, when he discontinues treatment, that excesses in work or intemperance in the matter of study or amusement will determine an attack; that indigestion, diarrhœa, sleeplessness, excessive nervousness and irritability, inability to fix the attention on the matter in hand, etc., are precursors of an attack; and that it is his duty, when such symptoms arise to consult his physician beforehand, and without waiting for the attack. He should be plainly told further that whenever he shall taste alcoholic liquor, or take medicines containing alcohol, a relapse is sure to follow. It usually takes a relapse or so to convince the patients that such is the fact, but they learn it after awhile.

For the indigestion from which these patients suffer, the old stand-bys, rhubarb, mint and soda are as good as anything. I give a tablet containing 1$^1/_2$ grains pulverized rhei, 2 grains sodium bicarb., and $^1/_{30}$ ♏. ol. menth. pip. one-half hour before meals, followed by a cup of hot water. For the aprosexia, sleeplessness, etc., I know of nothing better than a tablet devised by Dr. Reuben A. Vance, of Cleveland. Each tablet contains: Pulv. cantharidis, gr. $^1/_{10}$; ex. belladonn., gr. $^1/_8$; ex. nucis vom., $^1/_4$; zinci phosphidi, gr. $^1/_6$; ex. damianæ, gr. $^1/_2$. One tablet is to be taken at bedtime.

That the treatment of a disease be conducted "decently, and in order," it is essential that the physician have a work-

ing hypothesis as to the causation of the symptoms he is to relieve. The hypothesis I have been working upon is as follows: The effect of alcohol, which, as is well known, tends to inhibit the functions of the liver and kidneys, and render the secretion of the latter decidedly intermittent as regards the quantity of urea voided, is intensified in the neurotic subject. The symptoms are due to the non-elimination of some toxic product of tissue-change, to the effect of which on the nerve-centres atropia is an antidote. The ingestion of alcohol during treatment simply obstructs the emunctories still further, increases the toxæmia, rendering still larger doses of atropia necessary—and atropia in such large doses is by no means devoid of risk. I do not give it when I can help it, and then not until the nervous system is thoroughly under the roborant influence of strychnia, and the emunctories have had time to feel the stimulus of the terchloride of gold, the pilocarpine and the calomel. The plan of treatment during the paroxysm of inebriety may be summed up in brief: First, get rid of the toxic products; next, build up.

Unfortunately I have had no opportunity either to verify or to disprove the above hypothesis by a careful and systematic chemical analysis of the excreta of patients. Certain it is that there is nothing effective in the physiological action of the drugs, experience has proven, that militates against the theory. This I do know, however; we can say to these unfortunates, and truthfully, too: "If you will put yourself under treatment, and faithfully carry out our directions, in from a week to a fornight you can go back to your work cured of the craving, so long as you take reasonable care of yourself, and let liquor entirely alone."

As to relapses, I have known a patient to go ten years and then relapse in consequence of a dose of medicine containing brandy. Commonly they run from six months to two years between paroxysms, the interval lengthening as the patient learns better how to care for himself. With attacks

at such intervals, and with the habit formed of putting him-under treatment at the onset of the attack, paroxysmal inebriety need no more interfere with a man's usefulness of business success than does a tendency to recurrent attacks of malarial or rheumatic fever.

THE BATTLE WITH GERMS.

BY JULIA W. CARPENTER, M.D., CINCINNATI.

Knowledge of the cause of infectious disease is considered one of the achievements of the present day. Chemistry and the microscope, wielded by indefatigable energy, have brought to light some of the little things that confound the mighty. These microscopic travelers have been traced in their wanderings through the labyrinths of the human body and their manner of warfare studied.

It has been shown that when these microörganisms enter the body those that are not cast out of the system, are attacked by the white blood corpuscles and other wandering cells called phagocytes. These cells take the parasites into their interior, where they are killed and disintegrated. The destruction of the bacteria in the cells is a *chemical* process. In fatal cases the bacteria poison the cells that engulf them; or when the infection is overwhelming, there is no battle at all, it is simply a surrender at sight.

Again, it has been shown that fresh blood, serum, tissue juice and saliva have germicide properties, but not to an unlimited degree. The saliva will destroy the typhoid and cholera bacillus if they are not too numerous. The diphtheria bacillus and pneumococcus are not veiled, but lose their virulence.

The destruction of the bacteria by the fluids of the body is also a chemical process. The first, called the phagocytic theory, and the second, called the chemical theory, do not conflict. The first is a chemical process inside the

cell, but the fluids of the body contain the secretions of cells.

These are the methods of the destruction of germs in the body, but the reason why the cells win the battle in one case and lose it in another, cannot be demonstrated with our present microscope and chemical tests. It depends on a yet unknown something, called for convenience vital force, of which some persons have more, some less. The highest degree of vital force which gives resistance to disease is called natural immunity. This is seen when many are exposed to a poison, as small-pox or diphtheria. All do not take the disease, some have the normal vital power that offers the necessary resistance. Living tissue in a healthy state can destroy septic bacteria. If this were not so every one would have tuberculosis, for no one escapes breathing, at some time, air full of the tubercle bacilli. It is when the vitality of the body is lowered that that certain something is wanting that can destroy microörganisms. The vital force of the cells is the protecting power.

To prevent the inroads of infectious diseases there are only two ways, one pertaining to germs and one to the individuals. As to the germs, they must either be destroyed outside the body or forced to keep at a respectful distance. As to individuals they must cultivate the vital power that gives immunity. Can either of these things be done?

As to the first, is there any way to destroy germs outside the body, available for every day life for every one? What say the indefatigable workers in the field of bacteriology? They tell us that one of the most powerful destroyers of bacterial life is—*sunshine.* For instance, speaking of one of the most virulent of germs, the bacillus of anthrax, supposed to live in the soil, they say the anthrax spores are so tenacious of life, so resistant, that nothing in the soil can destroy them, only *sunshine on the surface.*

The little tubercle bacillus, a microscopic line, the dread-

ful scourge, but carries off more than any other one disease, the little rod that calls together the learned from all parts of the earth in great convention, what statements do bacteriologists make about this monarch? The following: "The tubercle bacillus, very tenacious of life, is found alive after being buried long in the earth, or even after exposure to ordinary weather, but is killed after *long exposure to sunlight.*" Are the rooms of consumptives flooded with sunlight for the protection of others, or is the sun shut out to save the carpet? The subject of sunshine as a germicide for every day life has not been emphasized, but medicinal germicides have been advertised the world over.

Can vital force be cultivated? Without sunshine and fresh air, never. Sunshine, besides being antagonistic to germs, has a wondrful influence on the body, imparting the deficient vital power by a process as unknown as the vital force itself. The human body as well as the vegetable world utilizes sunlight. The witnesses of the plant grown in the celler, and the green color of the same thing grown in the light, have their counterparts in human beings. Just what is the influence of sunlight on nutrition and nerve force we have no methods at present of estimating, but enough is known to induce physicians to warn people against shutting the sunlight out of their homes for the double reason, that it gives vital force to people and takes it away from germs.

Is the warning needed? Sunlight is shut out of every home as if it were the germs themselves. Take a drive through the suburbs of the city, a sunny winter morning when a little sun, a warm hearted visitor, should receive a hearty welcome. Every window toward the sun is closed by shutters, shades and curtains, usually three. If uncovered at all a square foot is the most. Whether palace or hovel the sun is barred out in all alike. Please notice if you have not already done so.

Plants with infallible instinct turn to the sun, man with fallible reasons turns away from it.

Another forgotten requisite to vital power is fresh air. The best way to prove its necessity is to look at the effects of vitiated air. The carbonic acid from the lungs and the emanations from the body soon make the air unfit to breathe. As it gets to this point it causes languor, headache, an oppressed feeling and various uneasy sensations. An eminent physiologist very accurately says: "It is a wonderful fact that the body after a time adapts itself to such vitiated air and that one soon can breathe, without apparent inconvenience, an atmosphere which, when one first entered it, felt intolerable. Such an adoption, however, can only take place at the expense of a depression of all the vital functions, which must be injurious if long continued or often repeated." The proof of adoption is well shown by the experiments of Claude Bernard. A sparrow is placed under a bell glass of such a size that it will live for three hours. If, at the end of the second hour (when it would have lived another hour) it be taken out and a fresh healthy sparrow put in, the fresh healthy sparrow will die instantly. The condition of the sparrow, at the end of the first hour, is the state of most persons, and where is the resistance to invading bacteria?

There is a growing dread of air that is most remarkable. People are actually afraid of it. It shows itself on all sides. If a street car is packed, and one, near the door, opens it, it is as quickly closed by another; and until it is actual summer, if one opens a window, all frown and move away as if it were a leper. Steam cars are no better. Returning in the early spring from a neighboring town, though the temperature was 55° F., each ventilator and window was closed and the stove red hot. As no one was nearer than five seats, I ventured to open my window. In five minutes the conductor approached saying, "I must shut the window, they are complaining of the air." With one window open in the

whole car a draught was not possible. A fish might as well be afraid of water as people of air.

Look at the latest luxury, so-called, in cars, the vestibule train, all closed up so the whole train is like one long car. In the ordinary car there is now and then a puff of fresh air from the door, now it is a puff from the next car no fresher than your own. What is this atmosphere in which one is shut up for twenty-four hours? Was there ever a car filled with only healthy people? The breath from the healthiest is refuse material, and to this is added the breath from some that have catarrh, dyspepsia, imperfect teeth, incipient phthisis, and the breath from various other invalids traveling for health. Some smoke is also mixed with this, as the smoking room being small the door is usually open. Opening one's own window cannot destroy this mixture, and inhaling it twenty-four hours puts one's vitality at least as low as that of the sparrow at the end of the first hour, and resistance to the germs inhaled cannot be expected.

People often say they took cold traveling. They had an influenza from the germs they inhaled and could not resist.

What about ventilation at night? The exchange of carbonic acid and oxygen in the lungs is not the same during sleep as when awake. More oxygen is taken in during sleep and stored up for use the next day, but how many give themselves more air at night than in the daytime?

A few months ago there was published in one of our journals a statement from some French physician as to a new treatment for phthisis which had brought about wonderfully good results. The new treatment was simply leaving the windows of the sleeping rooms partly open at night. This is amusing in the light of to-day, but as it is the national custom in France to keep all the windows closed at night for fear, as they say, of sore eyes, it was not so strange that he was amazed at the good effect of fresh air at night.

Physicians are by no means without blame in their

example as to air. Many ride in close carriages shut up almost the same in sunshine as in storm. In their assembly rooms one might often suppose they were solving the problems as to how long they could breathe the same air over and over and the discussions still continue rational.

There are some physicians, however, in our city, who have the courage to use out door air as an aid to treatment in some acute diseases, as pneumonia, and have all the windows open. Of course the result is good.

There ought to be a National Department of Health, and one of the chief duties should be to protect people as far as possible from all these so-called pathogenic organisms. And until people have the knowledge to protect themselves, they should be protected by law. For instance, garments that have wiped up the unspeakable infectious dust of the streets should not be allowed in any church, theatre, school or any assembly room. Of course persons have the right to stir up such an atmosphere and breathe it if they wish, but they have no right to subject another to it. Dreadful mistakes are made from lack of knowledge. The law of absolute cleanliness holds good outside of surgery. The results of Listerism are needed in more than one department.

Architects should be taught the laws of health so they will not turn beautiful homes into hospitals. Whether they need this instruction or not, look at one house, which is only a sample of many. There it stands alone in the centre of a large lot, facing the east, so the whole length of the house has the southern exposure so poetically described by novelists. But what is there on this sunny, airy side of the house? All the halls and numerous closets. On the north, where there is no sun, are all the rooms and bay windows. Windows toward the east catch the morning sun except those on the first floor. No ray of sunshine ever enters there. It is barred out by a roof so wide and slanting so low that the sun never stoops low enough to peep in. We speak of the coffin lid

crystals of the triple phosphates; the term might well be applied to this kind of a porch roof. If the house could be turned around, the north side on the south, it would be a model.

We have a fine government building occupying half a block. There are large windows, large corridors, but most of the work is done in the interior by gaslight.

Architects are not taught that sunlight and fresh air are germicides, and opposed to phthisis, diphtheria, etc., and so they cannot be blamed. In the meantime, however, they go on making the windows smaller and smaller, and the third story of homes almost without the possibility of ventilation.

If the laws of nature cannot be changed, why not follow them? The foundation laws of health are as ignored as if they were yet to be discovered. That sunlight and air are man's best friends one little dreams. The life of to-day is a cultivated one contrary to nature. It brings about a lowered vitality and susceptibility to the so-called pathogenic micro-organisms, for germs can not attack actively growing tissues, they can not affect man unless the tissues have been previously injured.

If the normal vital force gives immunity from these infectious diseases, and its lack gives susceptibility, instead of saying some germs are pathogenic to man, would it not be more correct to say, it is *man* that is so often pathogenic and not the germs.

MEDICAL EDUCATION.

BY J. H. CALVIN, M.D., HURON.

That this subject comprehends much more within its signification than can be included in the present article is readily admitted. It is, therefore, purposed to notice as briefly as may be a few of what seem to be the more important features in connection therewith. At no period in the history of medicine has there been so rapid progress as during the past decade. The causes which have led to this are such as should engage the earnest attention of all who preserve the honor and usefulness of the medical profession. In the Code of Ethics of the American Medical Association we learn that " every individual on entering the profession, as he becomes thereby entitled to all its privileges and immunities, incurs an obligation to exert his best abilities to maintain its dignity and honor, to exalt its standing, and to extend the bounds of its usefulness," How this has been done and how it may be done are questions of paramount importance to all who would have the profession attain to that degree of excellence, dignity and honor intended by the authors of the Code when they, with prophetic lore, as it were, penned and adopted the foregoing clause. We can not, at this time, take even a retrospective glance at what has been done by our ancestors, interesting and instructive as that would be. The wants and demands of the past are inseparably blended with those of the present, and those of the present afford some criterion at least as to what those of the future will and ought to be. While conscientious and

painstaking physicians recognize and appreciate the fact that the practice and science of medicine and surgery is now being unfolded and developed as never before, it must be admitted that grave dangers menace the integrity, honor and prosperity of this array of knowledge and skill. Surely its best interest and prosperity are being seriously hampered. It is not the purpose at this time to catalogue all these dangers, much less to prescribe remedies for them.

Among the dangers and evils that tend to greatly retard and dishonor the profession is the low standard of the prescribed qualifications which are recognized as qualifying and legalizing applicants to practice medicine and surgery. In no other profession is so low a standard recognized as fitting persons to enter into all its rights and privileges. The result of this is to overcrowd the profession with a great deal of inferior material that is willing to adopt means and methods that are calculated to and often do bring the profession into disrepute and disfavor, especially among the short-sighted and envious. We would not have it understood that overcrowding is responsible for all the disreputable practices resorted to by the unworthy and unscrupulous, who attempt to cloak themselves with the respectability of a diploma or membership in some medical organization for no other purpose than of hoping to thereby increase their undeserved patronage and ill-gotten gain. It must be admitted, however, that overcrowding is disastrous to many individually, and to the profession at large. To lessen the number who are heedlessly and needlessly rushing into the medical field would certainly tend to overcome some of the evils against which it has to contend. It is estimated that about 7,000 persons will be added to the guild this year. How best to curtail this oversupply is a most perplexing question.

That to which most effort and attention has thus far been directed is State legislation. That up to the present this has been a failure in this State is well known. At the same time

every individual of honor and sense must admit that some sort of legislation is imperatively demanded. Just why it has not been possible to procure the enactment of necessary laws is not as well known to the laity and the profession individually as it ought to be. If there is any comfort in the present status of medical legislation in this State it is the fact that it can sink no lower. During the last session of the State Legislature a bill to regulate the practice of medicine was introduced in that body which, if it did nothing else, served to show how utterly indifferent and ignorant many of the legislative solons are as to matters of vital importance to their constituents. The objections urged against proper medical legislation by some of the legislators were of such a character as to fill every true physician with shame and mortification, that the best interests of the citizens of this great State, as well as that of honorable medicine, should be thus ridiculed and ignored at the suggestion of medical quacks, charlatans and humbugs. If there is one State in the Union that has distanced every other State in recognizing and encouraging ignominy and fraud, as well as ignorance in medicine, that State is our own boasting Ohio. It would seem that there is but one thing more to do to complete our disgrace, and that is to fall down and worship at the shrine of every medical fraud and patent medicine vender, to clasp hands with every quack and humbug—in short, to combine with and recognize every besmirched and ignoble pretender, and then, without honor, conscience or shame, suicide in open legislative market by selling out to the highest bidders —money and popularity. It may be that those who manifest so bitter opposition to needful legislation are consoling themselves with the thought that they are making a record that will redound to their honor and glory when they have returned to their mother earth and to the home of the patent medicine men. If so, they may rest assured that no monument will ever be erected to perpetuate the memory of their

ignominious selfishness and cowardice and the unhallowed ignorance of those things so necessary to the safety and health of their constituents and to the elevation of the medical profession. It is not very much to the credit of physicians these days to say they are from Ohio. While the Ohio man has been and is getting there, the medical reputation of the State is noted as being the most complete outline of the quack's paradise anywhere to be found. Our statesmen and scientists are the admiration of the world, but with us honorable and progressive medical legislation is lagging, and our neighbors know us as giving birth to scores of inadequately educated doctors. Our teachers, ministers and lawyers are known and sought for near and far. Each of these professions is protected by legislation and literary requirements, while the medical fraternity has not a single protecting statute or custom. Is this fair? Is the intellectual part of man all, and his physical and mental growth and health nothing? Is life worth less than time or money?

What of that part of the public press that opposes every proposed law designed to regulate, purify and elevate the standard of medicine? What are the motives it has in view? Does it know better than the members of the medical profession what they need? It is not a matter of dollars and cents that is the mainspring to almost all the opposition to the enacting of laws to suppress danger and fraud in the practice of medicine and surgery? What interest has it in honorable medicine anyway? Does it desire that fraud and dishonesty be driven out of the profession? If not, why not? If it does wish the standard of medical and surgical ability and skill elevated to what it ought to be, how does it propose to have that done? Who ever heard of one of these publications making or advocating a single practical suggestion that would tend to bring about such a change? The gist of the whole matter is, that this part of the press is for all kinds of reform so long as there is no interference with the income

derived from advertising those persons and things which constitute three-fourths of all the ignorance, fraud and dishonesty attached to medicine in any shape or form. The patronage in the way of advertisements afforded these publications is the source of a large money income. For the sake of this revenue they are willing to prostitute their columns to the laudation of every known fraud and quack on the face of the earth. Their motives are so necessarily mercenary that their blinded prejudices lead them to assert that all physicians are like themselves, actuated by selfiish and base motives. This may seem like a harsh and unjust assertion, but when we acquaint ourselves with the slanderous utterances against legitimate and honorable medicine which are so freely and unqualifiedly made in this class of journals, we are justified in condemning such utterances in no uncertain language. It may be that those who belong to and constitute this class of publishers believe that physicians are opposed to quacks, charlatans and patent medicines because these things lessen the patronage and income of reputable doctors. Such a foolish idea ought not to be entertained by the proprietors of these journals for a moment. They ought to know that where quacks and quack remedies abound, there disease doth much abound, so that, instead of lessening, such things increase the patronage and income of every properly qualified physician. In any community addicted to the use of patent medicines and the patronage of medical frauds, there we will always find plenty of legitimate practice, due to the injurious effects of these damnable preparations. One of the most contemptible things to which this class of advertisers are addicted is the abuse of honest and competent practitioners. Many of the advertisements consist largely of slanderous utterances against the only possible honest and reliable treatment of disease and injuries.

That the press is largely responsible for the lack of needed legislation is not to be denied. It has, with but few

honorable exceptions, never yet suggested or advocated the passage of a single practical measure in the interests of the profession. On the contrary, the moment any measure designed to correct and prevent the evils of the profession is proposed, the cry comes up from all the corners of the earth that it is class legislation. Ever ready to warn the public of danger so long as their pecuniary interests are not endangered, these class-legislation nimrods are the last to do so when the truth would lessen the income arising from advertising "Manhood and womanhood lost and restored," "Pennyroyal pills," "Woman's best friend," etc. The latter two here named, with others of a like character, are little else than drugs and things intended to destroy the products of conception, and thus remove one of the strongest barriers to immorality and licentiousness in the young and unmarried. The thin guise thrown over many of the articles advertised show them to be of a character to make devils blush with shame. Not a few of the so-called religious papers and pamphlets admit into their columns the most abominable and untruthful assertions as to this or that charlatan or nostrum-vender. It is rather remarkable that the owners and venders of these secret remedies and frauds are so anxious to advertise in this class of periodicals, that they will pay thousands of dollars more than can be paid by the best selling legitimate articles for the same privilege. It is delightfully consistant to read in one paragraph of a leading religious periodical an exposition of the "Beatitudes" and in the next paragraph have the miraculous powers of some rejuvenating remedy set forth in such a manner as to indelibly impress on the minds of both youths and maids that there is such a thing as self-abuse, the effects of which are terrible, causing the misery, ruin and death of thousands until the discovery by precocious genius of a remedy which not only removes, but prevents, any injurious effects from indulging in this habit. In this way advertisements are

cunningly worded to inform those who are tempted to lascivious deeds, that they may safely risk honor and virtue, as the dangers attending sexual commerce are no longer to be feared, since an effectual remedy is to be had at much less expense than usually attends criminal operations having the same purpose in view. When we have ascertained the enormous demand and the immense profits at which these articles are sold, we will no longer wonder at so large sums of money being paid for the privilege of reaching the masses through this particular channel. These publishers may, and at times do, try to excuse themselves by claiming that they do not know the nature or design of the articles thus placed before the public, and that it is not the duty of publishers to ascertain the character of statements made in such advertisements. If this be true, why do not all newspapers and journals publish advertisements for which most money is offered? Why is it that reputable journals refuse to admit these devilish announcements into their columns, although offered fabulous prices to do so? How often do we see in glaring head-lines a purported tragedy or some important event, only to be disgusted at finding it a dastardly attempt to compel the reader to notice some vile and untruthful laudatory as to the virtues of a charlatan or quack! So notorious has this practice become that we insensibly look for the close of printed stories before venturing to read them at all. For all this sort of stuff those who are willing to publish it are well paid. The absurd and dishonest claim set up by those who publish this sort of trash that they do not know why it is, is insultingly ridiculous. The questionable character of this class of advertisements is so glaringly apparent to every person of even ordinary sense and intelligence that no inquiry is necessary as to their fitness to appear as printed matter in journals making any attempt at decency. It is the money received, and not the worth of the articles advertised, that gains for them a place in most

publications. The fact that properly restricted by needed legislation this infamous business would be abolished, together with the large income of the publications giving place to them, leads to the rampant opposition so noticeable during the pending of the medical bill last winter.

These self-styled exponents of the wants of society are among the most ardent advocates of the enactment of such laws as will compel those having the care and training of the intellects of our children to qualify themselves for that work. No word of remonstrance is heard from them against the legislation that created State and county boards for the examination of teachers for our public schools. On the contrary, there is a constant clamor on the part of these same publications for the passage of such laws as will protect the public against incompetent teachers, ministers and lawyers. Nothing is heard about class legislation in secular educational matters. But let a part of these teachers resort to well-paid advertisements as a means of bringing before the public their qualities and success as teachers, and the visionary necessity of impressing this on the public mind, and then mark the change. If now an attempt be made to put a stop to this sort of advertising on the part of these would-be teachers, and thus shut off the large income to the papers publishing the same, a storm of opposition and denunciation would meet every attempt in this direction. It would be class legislation.

The lack of necessary legislation should not discourage physicians as to the possibility of elevating the general standard of medicine and surgery. There is a most potent remedy at the command of every one who has the honesty and courage to use it; a remedy which will not only diminish the number who are seeking admission into the profession, but it will also render those who are admitted much above the general average of those now on the market. Were physicians to adopt and adhere to a resolution to accept no

one as a student until satisfied that he is qualified to study medicine intelligently, and was possessed of right motives, much would be accomplished in the way of keeping unfit persons out of the profession. It seems a common desire on the part of young physicians to pose in the rôle of instructors. Too often the chief inducement for them to do so is their belief that the presence of a student in the office will add to the reputation of the doctor for skill and ability, and to his patronage and income. It needs no argument to prove that this belief is a delusion and a snare, the opposite being rather likely to be the effect. Because of this eagerness to become medical sponsors, young men of inferior qualifications are not only permitted to, but too often are urged to engage in the study of medicine. To become the preceptor of one who wishes to study medicine is to assume a most serious and binding obligation. No conscientious and intelligent physician will lightly take upon himself the responsibilities of a preceptorship, neither will he consent to expend his time and ability upon any but those worthy of his highest esteem and confidence. When a young man applies to a physician for the purpose of becoming a student of medicine, he ought to be subjected to a reasonably severe test as to his moral, physical and intellectual fitness. It is scarce to be expected that a person of improper morals will be a fit one to engage in the study and practice of medicine and surgery. Any one not having at least ordinary health and bodily strength should not be accepted as a student, since the incessant and hard study and the arduous duties of the ordinary practitioner's life are such as to test the ablest physical organizations. Young men are apt to picture the physician's avocation as one full of honor and plenty of money, with little to do and lots of pleasure. It is well, therefore, to point out to him and impress upon his mind the stern realities he will have to encounter, and that in no other profession will he have to spend as much time and energy for as

little money as in that of medicine. If he has, as so many do, formed the opinion that it is a life of ease, it is best to undeceive him at once. The life of the country practitioner is one of the most trying that can be undertaken. It is well, also, to ascertain the motives he has in becoming a physician. None but one of known integrity, and possessed of the true elements of manhood firmly fixed, should be taken into an office as a student, and above all and in all, he must show that he has within his very soul that innate love for its labor and duties, without which no one can be a successful physician in the fullest and highest sense of the calling. No profession offers greater inducements or opportunities for the practice of deception and fraud than that of medicine, and in none are these vices more prevalent. This is usually denied by the guilty, but that does not alter the fact.

Our medical colleges—and this is treading upon dangerous ground—could do a great deal more than has been and is now being done to raise the standard of medical knowledge and skill. A few of them are cutting loose from the meager curriculum of former times, and have added to the requirements, for graduation until an attendance of four full terms is obligatory in a few of our colleges before the applicant is eligible for graduation. But we hear complaints about these additions to the requirements for graduation. And then just see what the students at the medical colleges in the State of New York attempted. The complaint about the regulations compelling more and better work come from those who, having failed at everything else, would, as a last resort, load themselves onto the medical profession, where the serpigenous infiuence of their gross ignorance would contaminate and destroy every attempt to still further advance the standard of the lower grade of medical colleges. If it requires the average student six years to complete a course of study at the ordinary literary colleges, what reason is there to suppose that he can properly qualify himself in a practical and safe

knowledge of medicine and surgery in any less time. If the best medical colleges, with all their claimed advantages, believe four, and even six years, necessary, how can inferior schools do the same work in two years. Do the former require too much or the latter too little before graduating students of medicine? Take as an example of outlandish egotism, that can scarce be other than criminal ignorance, the institution at one of the smaller towns in this State of Ohio.

Then, too, so much of the so-called instruction, or lectures, at our medical schools is so poorly done that the students are but little, if any, benefited by it. It is to be regretted that many of the ablest practicing physicians are but indifferent teachers. It is one thing to be a good physician or surgeon and quite another thing to be a good instructor. In literary colleges skill and tact in teaching is considered a most important acquirement. Is not the same sort of ability equally necessary in medical colleges? The instructors of medical students ought to be men who are imbued with the spirit of their work and duties as teachers and noted for their ability as educators, as well as for their worth and skill as physicians and surgeons. The coming method of getting ready for examinations is quite as common in medical as in literary institutions. Too many attend college simply to graduate. Such persons are apt to attend schools at which diplomas can be most easily obtained. Accept no one as a student who will not agree to attend at least three terms at a reputable medical college. It is no credit to a physician to send to college or jostle into the profession persons unfit for either. In justice to the profession he is in honor bound to see to it that none but those whom he believes in all ways fitted for the responsibilities they wish to assume are admitted into the already overcrowded ranks.

Another unjust and demoralizing influence against which the profession has to contend is the average drug-store. A

druggist who does a strictly honest and legitimate business is the exception rather than the rule. From every corner of the land there comes up the cry from the druggists that they are not receiving the patronage and support due them on the part of the medical fraternity. They claim and complain that many doctors are carrying and prescribing drugs to the detriment of the retail druggist. That this is true is not to be denied, but while admitted that such is the fact, it is well to consider the causes which have brought this about. It needs but little acquaintance with the practice of the majority of so-called prescription druggist to convince any unprejudiced and far-minded person that the druggists have themselves to blame most for their loss of patronage on the part of physicians, and that their short-sighted folly and greed has been the chief factor in bringing about the very condition of which they now complain. Druggists and drug-stores ought to be the physician's best friends, whereas they are, with but few exceptions, just the opposite. What are the facts? Is it not true that the average druggist of to-day runs his drug trade for his own exclusive benefit, and that he would, if he could, dare to come out openly and above board, to the utter destruction of every vestige of honor relative to the practice of medicine? It is indeed a pleasure to be able to know that there is here and there a druggist who is true to his calling, and thus true to himself and the medical profession.

The future of the ordinary retail drug-store is not bright. The indications at the present are that the great majority will continue to deteriorate, where that is possible, until they become little else than retail dispensaries of deception, fraud and vile whisky—a most inhuman imposition upon the public, to the doctor's financial gain and the joy of the undertaker. A few years ago, when doctors remonstrated against the growing practice of counter-prescribing, those engaged in that sort of business merely smiled at the doctors and said:

What are you going to do about it? Well, the doctors have found out what to do about it. They simply said to the druggist: You prescribe your drugs and we will prescribe ours. There is such a thing as legitimate pharmacy, and there are many intellegent and honorable pharmacists who deserve to and will be upheld and patronized by all who are disposed to deal fairly with legitimate prescription and retail druggists. But the course pursued by the majority of druggists is such that to protect themselves and their patrons physicians are compelled to carry and dispense their own medicines. This is not a matter of choice and for the sake of profit to the doctors, but one of unprofitable necessity. If, after obtaining legislation by which physicians were as nearly as possible legislated out of the right and privilege of dispensing drugs, the drug men had set about remedying the evils existing in their business, in place of taking advantage of the pharmacy laws to intrench and extend the already existing evils, they would to-day be in much better standing, morally and as a profession. If druggists compel each physician to become, as it were, a dispensing pharmacy, to the extent of supplying his own wants, who is to blame? When druggists learn that doctors are something more than mere tools by which druggists may increase their trade and profits, they will probably be willing to entertain and respect some of the privileges and rights belonging to doctors. As a profession physicians ought to bear in mind those pharmacists doing a legitimate business, and if possible patronize none others. May the time soon come when practical medicine and pharmacy, including the prescription-counter, will each be in honorable sympathy with the other, as it is only in this way that they can be most useful and beneficial to all those for whose welfare their united efforts should be directed.

You will, I trust, pardon me for referring to a feature, by no means pleasant, but it is a serious one, and we ought no longer close our eyes against it as a question of vital import-

ance. Incompetency on the part of individual members in any profession is always to be regretted. but in none are the consequences of inexcusable ignorance so deplorable and disastrous as in that of medicine. It would seem that a great many would-be doctors are imbued with the belief that it is only necessary for them to obtain a sheepskin, or some other indication that they are to be recognized as doctors, in order to be excused for any bad results, even though these are unquestionably due to their ignorance and incompetence. While firmly believing that the great mantle of charity should be freely proffered those who are so unfortunate as to be justly entitled to its benign influence and strong protection, I do not believe that it should be so generally applied as to render it a cloak for the concealing or assuming of individual responsibility of persons not entitled to protection on the part of the profession. While it cannot and should not be denied that the ablest men in our fraternity are ignorant of much that we believe will be known and understood by our successors, it does not by any means follow that all ignorance on the part of physicians is to be excused or condemned. There is ignorance that deserves to be and should be excused, and there is an ignorance that is not and should not be excused. It is not always an easy matter to decide between excusable and inexcusable ignorance. There are, however, hundreds—yea, thousands—of instances in which there can be no question as to the lack of knowledge being but little if any short of criminal responsibility, in which those guilty ought to be held strictly accountable for the distressing results due to their want of proper knowledge and skill and consequent inability to rightly meet the duties and requirements necessarily attached to our professional work and life. The plea offered in behalf of this class of practitioners—that, being regularly graduated, they are entitled to recognition and protection by the fraternity, individually and collectively—is not applicable here any more

than in other professions. Many of the veriest quacks and charlatans are very fond of flaunting their diplomas in the face of those who would bring them to an accounting for their shameful practices of fraud and deception, by which so much irreparable injury is inflicted on the unsuspecting public. It is time—and high time, too—that we free the profession of the charge that it is not only willing but anxious to defend its unworthy members. It may be, and often is, argued that even the poorest medical graduates are a great deal more able to take care of the sick and injured than those having no medical education at all. While this is true in many instances, there are others—and lots of them, too—in which it is not true. Nowhere is the saying that "a little knowledge is a dangerous thing" more powerfully illustrated than in a bold, but rash, ignorant and egotistical would-be physician or surgeon, particularly the so-called specialist. The almost innumerable examples of the basest malpractice by this class of persons is sickening and disgusting, as well as discouraging, to every properly informed and honest member of the medical profession. To make the possession of a diploma an excuse for all sins of commission as well as of omission is a mistake. The possession of a legalizing parchment is anything but proof of ability of the holder. This may sound harsh, but a little search as to the facts bearing on the statement will establish the truth of it.

It is not the intention to disparage the worth of diplomas, but it certainly is neither just nor wise to regard the possession of one as positive evidence that its owner is, without further inquiry, to be recognized as properly qualified to enter the practice of medicine and surgery. Graduates of literary colleges are not so regarded, even when they have specially prepared themselves for any particular work. The graduate of the best normal school must, in spite of his diploma, submit to a test made by examining boards appointed on the part of the State. Is not this a wise provision? Not

only must they do this, but they must submit to further examinations from time to time, until by experience and ability they are entitled to a life certificate, after which they are at liberty to pursue their avocation during life unless such certificate should be revoked for incompetence or negligence. Why should not medical graduates be subjected to some similar arrangement on the part of the State? Make the possession of a diploma a prerequisite for examination, without which no one should be eligible for examination. It ought also to be required of those who desire examination to present diplomas from not less than three-year colleges. The examination should be so conducted as to ascertain what the applicants know rather than what they do not know. When it is once fairly understood that medical diplomas are of no more special value than the diplomas of other institutions of learning, but are certificates to the effect that the person named thereon has complied with the terms necessary to graduation at the institution granting the same, less eagerness will be shown in obtaining diplomas than in being able to meet the ordeal through which they entitle the holder to attempt to pass. It is true that under a severe test many would fail, but not many would fail who would have succeeded in the profession. It can be safely guaranteed that under rigid examination and subsequent examinations the supply of doctors would be greatly reduced, but to the advantage of both the profession and the laity. In other professions when it is desired to shut out the undesirable element, it is usually accomplished by examinations. So long as the best are retained and the worst cut off there can be but one result, and that to better the fraternity. Indeed, there is no better way by which any profession can be made better. Repentance must needs begin at Jerusalem.

INDIGESTION.

BY W. F. BARNES, M.D., FREDERICKSBURG.

We rarely hear in medical societies anything of every-day matters, in which, as general practitioners, we are so much interested. If I succeed in bringing this subject before you in such a way as to induce a further investigation, the object of this paper will be accomplished. Nor can we more than give a synopsis of some of the leading divisions of this very complex disease, which is not a disease, but a term used to hide our ignorance; a set of symptoms growing narrower as we improve in diagnosis; a departure from the true standard of the functions of a set of organs whose duty it is to supply the organism with food; funtional disease is a misnomer. Every disease has its pathology. If we knew the pathology of dyspepsia we would drop the general term, and improve our nomenclature. A large proportion of the cases coming under our care are directly or indirectly the result of indigestion. Correct assimilation and the disease disappears. No period of life is exempt. When we first open our eyes, our over-anxious mothers, with their depraved ideas, stuff us with catnip tea, sweetened water, whisky, etc., starting us out in life with diseased stomachs, thus preparing the way for our depraved appetites, making slaves of us the rest of our limited lives.

Digestion is the most complicated, as it is the most important of the functions of the body. Disturbance of these functions is not always due to deficient secretion, for when the

proper stimulus is applied, the organs will respond, unless there is some visible organic defect. Recent investigation seems to establish the fact that pepsin is always present, and probably the other digestive ferments are also present. Nature is very liberal with her creatures, always supplying them abundantly.

In order that digestion be carried on satisfactorily the food must be properly prepared, taken in suitable quantities, at proper intervals, and mixed in more or less definite proportions with the secretions of the alimentary tract. Anything that interferes with either of these steps will lead to dire results.

The preparation of food, while it is of the most importance, does not belong to this paper. Insalivation, the first direct act, being thoroughly done, digestion is well on the way. In mastication, or grinding and mixing the food with the saliva, the starch is converted into diastase or sugar, making it soluble; the proteids are pulverized, and thus prepare for the acid digestion of the stomach, which, in turn, dissolves the albuminoid envelope of the fat globule that it may be emulsified by the pancreatic secretion later on, a kind of evolution, which began long before the carbon or hydrogen or oxygen got into the potato or cereal, or the albumen into the beef. If the first step fails, there will be more or less failure throughout; the starch will not be converted into sugar; fermentation will take the place of digestion; acidity, eructations of gas follows, requiring a dose of bicarbonate of soda. If the acid in the stomach is neutralized, so are the digestive ferments. The mass is passed to the duodenum to be converted into an incomprehensible collection of pathological ptomaines, which are absorbed into the circulation, benumbing the sensibility of the nerve centers, also disturbing the heart, paralyzing the muscular coat of the bowels, inducing constipation. The remnant is allowed to remain in the alimentary canal indefinitely, until

it is completely dried and burned up—a regular dry-closet system, without a patent.

This form of dyspepsia, self-inflicted, is the most common. The least amenable to treatment, without correcting the vicious habit of bolting, it will get well if the habit is corrected.

How easy follows the next form of indigestion, functional derangement of the stomach from the presence of these poisonous gases, of which we know so little, interfering directly with secretion, and indirectly with blood and nervous supply. The reserve power of the stomach is a wonder, with its 5,000,000 compound glands, secreting pepsin, hydrochloric acid and mucus, either one or two, or all three of them at once, as the emergency requires.

It is no wonder the secretory apparatus of the stomach, so well protected from external violence, trained through all the ages of the past to secrete gastric juice, will continue the work under almost any circumstances. Excesses and irregularities in eating and drinking will produce but temporary derangements, unless long continued, and then there are organic changes that take them out of the class of functional diseases. In many cases the stomach and its helpers work up all given them to be carried into the circulation in excess of the needs of the system, there to give no end of trouble in the shape of gout or rheumatism. Indeed, many of our diseases are due to hyper-digestion.

However perfect this system, all the parts must work together; every constructive secretion must meet its complement; that is, if the gastric juice is poured into the stomach, and finds nothing upon which to work with satisfaction, there will be a strike, and the fellow in whose stomach it occurs will be painfully conscious that something has gone wrong. If normal, we are not conscious of anything going on. Digestion is a vital act; there are elements entering into it that are endowed with a certain intelligence; as in the

blood, and perhaps in other parts of the body, capable of living, growing, performing certain duties subject to their environments, and dying. It is in this part of the apparatus that albuminous substances are converted into albuminose, which is probably a hydration, as it is with starch, making them soluble and diffusible. If not thus changed, they will be thrown off as effete matter, causing more or less trouble; the gastric juice, instead of being used and carried back into the body, becomes highly acid, acts as an irritant, and comes up in the shape of eructations, causing a sensation of heat and heart-burn. What is not thrown up is emptied through the pylorus to disturb that part of the work yet to follow.

In most cases of dyspepsia the victim loses flesh. But there is an exception that ought to form a distinct class, which I would call the fat-man's dyspepsia. If it has been described I have not seen it. The patient grows more fleshy, the muscles become more soft and flabby, pulse small, heart's action weak, large quantities of gas are generated in the stomach, the skin will be abraded where there are folds, from which will exude a thin, watery fluid; unable to work, their habits are sedentary; they do not get the gout, but often have lumbago. If they live to be forty-five or fifty years old, they will often be found with sugar in the urine. Proteids, instead of going to make muscular tissue, by some mysterious transformation go to form tissue of a lower grade—adipose.

Anæmia is a frequent cause of dyspepsia; the blood-supply being short, the secretion of gastric juice is correspondingly less, and the assimilative powers of the stomach are weakened. It is a question whether there is not always a loss of blood-supply in cases of nervous origin. The nerve-center is disturbed; as a result less blood goes to the stomach, and functional derangement follows. Many of these cases are due to excessive use of tobacco, yet many habitual users of tobacco can not digest their food without an after-dinner cigar or a chew of tobacco.

Digestion is mostly done before reaching the intestinal canal, but we find here an alkaline fluid capable of completing what is left. The starch is converted into diastase, albuminous compounds into albuminos, and the fat is emulsified. The pancreatic secretion, assisted by the intestinal secretion, is thus shown to have a much wider range of usefulness than anything we have found before. If it were not for this arrangement, dyspepsia would be much more common than it is, and the results more serious.

The liver, the largest gland, and the darkest region of the body, takes a very important part in assimilation and digestion. But I will only mention the laxative and disinfectant properties of bile as connected with primary digestion.

TREATMENT.

I will not worry you with a full description of the treatment of dyspepsia. Every case must be managed on its own merits. Being largely etiological, remove the cause and the disease gets well. But little medicine is needed where there are no perceptible organic lesions. The human body is a great automaton, always ready to correct itself. We make mistakes by attempting too much. Machinery is sent out with the parts adjusted and a notice not to disturb certain screws, as they will work all right; if changed, only a master mechanic can again adjust them. So it is with the digestive organs; there are screws we had better not move.

We have acids and alkalies and bitter tonics and digestive ferments without end; perhaps they all have their place. As to the latter, if you read the literature put into the hands of the profession by our enterprizing pharmacists you will be led to believe that we can get along without any gastric juice. All we need to eat our dinner, select and take what will digest it, either diastase, pepsin or tripsin, combined with an acid or an alkali, as the case may be, and sit down and await results. We can outdo nature, for we know how much it takes to digest a given quantity of beef, or pork, or

baked beans. What are the chances of success? Less than the dose in Hahnemann's one hundred and fiftieth dilution, and this only in regard to primary digestion, leaving out the more intricate processes connected with tissue-building! How necessary that the beginning be right! What a small error in the beginning of a mathematical problem will destroy the entire work! Who can give the chances necessary to build hæmoglobin out of a piece of beef, much less the intricate and complex lecithin? Yet the functions of the body can not go on a minute without the oxygen-carrying properties of the former and the force-giving energies of the latter.

What failures we make when we attempt to substitute the secretion of one of the lower animals for that of another of a higher type! How perfectly are all our wants supplied! In transfusing blood, water and salt does as well as the blood of lower animals. In the use of oil for the hair nothing takes the place of a healthy scalp with a normal secretion. If your horse comes out after a hard drive with his hair on end, will you send him back with a bottle of patent hair-oil? You had better look after his feed; perhaps give him a little arsenic, and raise the salary of your rubber. Time will prove that the pepsin of the pig will not take the place of the secretion of the human stomach any better than his fat will supply the secretion of sebaceous glands.

Success in the treatment of this troublesome class of cases must be along the line of correcting vicious habits in eating and drinking, the judicious use of laxatives and other means of regulating the action of the bowels, and antiseptics.

HERPES OF THE BUCCAL MUCOUS MEMBRANE, WITH PRESENTATION OF PATIENT.

BY J. E. BOYLAN, M.D., CINCINNATI.

I have the pleasure of presenting to you this afternoon a case of vesicular inflammation of the mucous membrane of the fauces—in itself a rare condition—which I feel sure will prove sufficiently interesting to justify me in taking up a little of your valuable time. The objective symptoms are, just now, fortunately for us, very pronounced; that is, in part at least; the condition is easily seen by direct inspection, and is one which might readily be mistaken at first sight for diphtheria, or possibly for one or two other diseases which are more common in the region of the fauces. In fact, the patient states that when diphtheria appeared in the house in which she was employed about two years ago, the attending physician — a very capable one — informed the family that she was suffering from that disease. The history of the case is, briefly, as follows:

Three years ago, in Ireland, the patient had a throat affection which began with a febrile attack, during the course of which white patches formed in her throat, which soon loosened, so that she could occasionally detach them as shreds with her tongue. The condition would improve and then get worse again—that is, more patches would form, till after some three or four months it disappeared entirely. Shortly after her arrival in this country, in September, 1889, the affection broke out again, and it was at that time that it was taken for diphtheria; it lasted, as upon the former occasion,

several months, varying in its severity, to finally disappear entirely. In March, 1891 (a little over a year ago), the affection reoccurred, and it was then that she first came under my observation. When she presented herself, there was partial aphonia; she complained of pain in the throat, and of having had fever at evening for some time past; temperature at the time was 101°.

Upon inspecting the pharynx I found located upon the anterior and posterior pillars, and upon the anterior surface of the soft palate, a number of circumscribed, grayish-white patches, which at places amounted to a mere film, at others were thick, opaque, membranous in appearance. Upon the right side, two or more of them were confluent, and besides these patches several denuded spots were to be seen, and further, a number of punctate white specks. At first sight the condition resembled that which I had seen in tubercular pharyngitis on one or two occasions. On closer inspection, however, there was wanting the pallor of the surrounding tissue so common in phthisis of the throat, and also the infiltration in the immediate vicinity of the lesion; on the contrary, the tissue about the patches was perfectly normal in appearance. Careful percussion and auscultation of the chest gave, as far as I could ascertain, absolutely negative results, and the question of phthisis, if there had been any, was altogether eliminated in the course of a week or two, by the rapid way in which the affection disappeared at one point, after throwing off the patches, to reappear at another.

The patches described steadily increased in size, so that in a few days from the time they were first seen they invaded the greater part of the surface of the pillars and the soft palate—the largest of them, with irregular triangular outline, extended from the middle of the uvula to and over upon the left tonsil. At one or two places, where the membrane was thickest, it had a wrinkled appearance and loosened edges, which suggested that it might be easily detached.

Upon attempting to remove it with a forcep, however, I found that in most places it was quite firmly adherent, and that the denuded surface bled upon its removal. Being, I confess, completely at a loss to account for a state of affairs the like of which I had never seen before, I consulted with a colleague who sees a large number of throat patients the year round, but to him too the case was as novel as it was interesting, and he naturally would not venture upon a diagnosis based upon a single inspection and the history that I could give him. Microscopic examinatlon of quite large flakes, which I succeeded in detaching, made by expert bacteriologists (at our city hospital) upon two different occasions, gave practically negative results. After seeing the case almost daily for over a month, during which time the symptoms had almost entirely receded and again became pronounced, I noticed that several of the smaller white spots had minute red apparently protruding centers, which suggested that they might be ruptured vesicles, and upon questioning the patient, she stated that when the condition broke out afresh she sometimes felt blisters in her mouth, which very soon broke. With this new light upon the case I established a very close watch and instructed the patient, who was living in the house, to come to me at once when she thought that blisters had formed, and by this means I was enabled, during a period of several months, to demonstrate entirely to my satisfaction upon two distinct occasions, the presence of vesicles or blebs upon the affected mucous membrane. Upon one occasion two tense glistening blebs upon the side of the uvula—one of them the size of a split pea—upon another a cluster of five or six flatter and more opaque vesicles, all of which remained upon the mucous membrane but a few hours and had disappeared after the patient had taken a meal. The condition has now lasted to my personal knowledge, with the exception of three weeks in September, uninterruptedly for thirteen months, and has

stubbornly resisted a varied treatment including the application of astringents—of iron—of solutions of nitrate of silver and of a 50 per cent. solution of resorcine. At no time during the period mentioned was there an invasion of the posterior pharyngeal wall.

Of the vesicular inflammations which affect the buccal mucous membrane, there is but one besides herpes known to me which includes the majority of symptoms presented in this case namely, pemphigus, and the possibility of its presence here was suggested to me by Dr. Ravogli, who also kindly saw the case with me and who called my attention to an article on the subject by Dr. Mandelstamm in the *Berl. Klin. Woch.*, of last. In works on diseases of the throat, the literature on both these subjects and especially upon pemphigus is very meagre. Voltoline, Bosworth and Cohen, ignore them both entirely. Mackenzie, Stoerck, Bresgen are silent upon the subject of pemphigus. McBride in his new work devotes six lines to pemphigus and twenty-four to herpes. More is to be learned of the throat lesions of these affections from text-books upon skin diseases, as in Hebra's Handbuch," and the text-books of Kaposi, Neuman and Schach, but in all of these pemphigus of the buccal mucous membrame is very superficially discussed. The most thorough and detailed description of *herpes* of the mouth I have encountered in any work is that of the ever versatile and thorough Sir Morrell Mackenzie, from which I make the following brief extracts:

"On inspection of the pharynx at the onset of the disease, a variable number of single or grouped, whitish, opaque vesicles can be perceived; they occupy the soft palate, the pillars of the fauces and the tonsils. The number of vesicles varies greatly in different cases; sometimes one or two can be seen, while in the worst instances they are arranged so closely as to become confluent. The duration of the vesicles is very ephemeral, but in many cases they appear in suc-

cessive crops. The termination of the vesicular stage may take place in three different ways. In the milder cases the vesicles disappear by reabsorption and leave no lesion to mark their former situation. In another variety of the disease the vesicles burst and small circular ulcers result. In a few days these ulcers cicatrize.

In a third or severer form of the disease the ulceration takes place, *but the sore, instead of healing, becomes covered by a false membrane, resembling, both in appearance and structure, the exudation of diphtheria.*

These phenomena most frequently occur on the palate and are rarely seen on the posterior wall of the pharynx. When the vesicles are very numerous the patches of exudation may unite at some places, so as to form sheets of false membrane of limited extent. In three or four days, however, the ulcers heal, the exudation becomes softened and detached and the mucous membrane recovers its healthy state." He further states that the disease is, in England, very rare, and that certain idiosyncracies have also been observed in patients liable to suffer from this affection; thus, "Terdieu mentions the case of a young man in whom herpes of the pharynx alternated for several years with similar eruptions of the prepuce. In one case it attacked a child for three years consecutively."

Hebra, in referring to herpes within the mouth, writes as follows: "The appearance of this affection, when it attacks the skin, however, is different from that which it assumes on the mucous membrane. On the cutaneous surface this eruption consists of vesicles distended with a clear watery fluid and arranged in clusters. Within the oral cavity the affection presents different characteristics. The formation of vesicles does not go beyond its earliest stage, for the epithelium of the mucous membrane is too delicate to be able to retain, for more than a very short time, the fluid which collects beneath it. Hence the vesicles soon bust and we

then perceive a number of white spots, perhaps as large as lentils, due to the muceration of the epithelium, or if this has become detached, certain shallow excoriations mark the points previously occupied by vesicles."

In considering pemphigus chronicus Hebra states the following:

"In pemphigus bullæ are sometimes found on the mucous membrane of the mouth and throat. When this is the case, the skin also is generally affected, but not invariably. It has happened that blebs have been seen on the mucous tract, while the integument remained free. It is but seldom, however, that the mucous membranes are extensively affected; much more frequently a solitary bleb appears, or a few scattered blebs, previous to or simultaneously with an outbreak upon the skin. It is indeed rather exceptional to observe on a mucous surface real bullæ—that is, actual elevations of epithelium, with collections of fluid beneath them. The membrane offers so little resistance that it gives way almost as soon as an accumulation of serum begins to form. It appears as a white membranous covering which is apt to be rolled up by the movements of the tongue and finally separated and spat out." According to Kaposi the blebs of pemphigus differ anatomically from those of herpes and eczema in that they are very superficially located, their surface being formed by the most superficial horny cell-layer, and this no doubt accounts for their early rupture and the very few occasions upon which they have been seen upon the mucous membranes. In none of the four cases of pemphigus of the mouth and fauces reported by Dr. Mandelstamm in the article above referred to, were blebs or bullæ to be discovered. In three of the four cases no general eruption appeared while under his observation. He soon lost sight of these three, but learned later that two of them had succumbed to the disease. In the last of the four the diagnosis was corroborated by the final appearance of a typical pemphigus foliaceus upon the neck,

breast, stomach and hands. As the clinical picture and the course of the disease in this case, however, corresponded exactly to those presented in the other three, he had no doubt as to their being identical.

This fourth case was that of an otherwise quite healthy man who, when he presented himself, complained of a difficulty in swallowing and a disagreeable odor from his mouth of several weeks' standing. The patient had at no time fever, his appetite was good, but he swallowed with difficulty. Examination showed on various parts of the tongue, cheeks, lips and pharyngeal mucous membrane, grayish white or entirely white, sharply defined circumscribed deposits, which were in places quite thin like croupous deposit, in places thicker and more compact, resembling diphtheritic membrane, and which seemed pretty loosely attached; on the tongue they were confined to the free edge and under surface, on the interior surface of the soft palate the deposit became confluent to form a large grayish white membrane, from which protruded in many places red islets, which were denuded of their epithelium. On the posterior pharyngeal wall a few deposits were noticeable, the anterior surface of the epiglottis was also covered with a white deposit. The condition suggested at first mercurial stomatitis. It disappeared only to reappear in other places and lasted more than six weeks. The picture and the clinical history therefore, in these four cases of pemphigus, vary in several rather material respects, from those presented in the present case. In them the lesions were scattered over a greater surface of mucous membrane and appeared also upon the posterior pharyngeal wall. In herpes the lesion is confined to a comparatively small area, and according to several authors, rarely if ever extends beyond the fauces. In none of the four cases of pemphigus were vesicles to be described upon the mucous membrane. Characteristic of all the pemphigus cases were a very offensive odor from the mouth and excessive salivation,

neither of which symptoms prevail in this case. In the pemphigus cases there was at no time fever noticeable, while here, as in herpes, it is ushered in with a febrile movement.

To what extent these differences are of diagnostic value I cannot presume to say.

The chronic nature of the case presented ought to be a distinctive feature, for herpes is essentially an acute affection, but there are, as we have seen, exceptions to this rule, and for reasons mentioned above, I believe that we have here to deal with a case of frequently recurring or chronic herpes, if I may use the expression.

I wish finally to apologize for having quoted so much. I did so in the hope of interesting you the more in the case. I would much prefer to show it by sunlight, but as that is not available here, I will turn a battery light upon it. You will find thick diphtheritic-like patches covering the pillars and the tonsils on either side, loosened in places, and even hanging in shreds, but at no point extending further back than the fauces.

If, by calling attention to this case, I shall help to throw some light upon a condition which some one of you will meet in the future, I shall have attained my object in exhibiting it.

DISCUSSION.

DR. M. THORNER, of Cincinnati:

I believe that this case is deserving of greater interest than any one of a similar class that I have seen. As to the diagnosis, I believe it is a case of so-called herpes of the pharynx, or common membranous sore throat. The one thing that makes the diagnosis somewhat doubtful is the duration of the disease. Herpes of the pharynx is in the great majority of cases an acute affection, lasting rarely longer than eight, ten or twelve days. Ordinarily the disease is so self-limited that if nothing is done the disease will disappear within a short time. Usually something *is* done, however, and frequently it impresses both doctor and patient as diphtheria. Hence we hear at times of the almost

magic effect of certain remedies in speedily curing this dreaded disease.

The typical thing about a herpes, to be sure, is the vesicles. These appear in the beginning of the affection, after a prodromal stage of illness, lasting from two to four days. They are located on the soft palate, uvula and sometimes also on the tonsils. The affection is generally unilateral. After a short existence these blebs become excoriated and are covered with a white, plastic exudation, which by confluence forms the white membranes. This is the condition usually seen by the practitioner, while the vesicular stage is very seldom observed. In a number of cases, three or four, I never saw the vesicles; and it is remarked by some author that unless one sees the case very early one sees nothing but the white membrane, which greatly resembles the diphtheritic membranes. The course of the disease and the other features of this affection may help to make a correct diagnosis, which is facilitated if we see a concomitant herpes eruption on the lips, nose, or mucous membrane of the cheeks.

The description given by the essayist, I think, corresponds in every detail with the description of those gentlemen who have had the largest experience; and I should like to refer to Trousseau and other French writers, who describe it just as we see it here. The local condition, as shown by this patient, appears to me to be typical of this disease. In peeling the membrane off you get a raw surface under it. We often see the membrane falling like a curtain, which is very characteristic.

The French authors refer to a herpetic diathesis; and it is certainly true, even if we do not accept this term, that these herpes eruptions occur again and again in the same subject. I do not refer merely to throat cases, but to herpes in other places also. There are a number of different causes mentioned by different authors; but of late this herpes of the pharynx has been considered by many to be a herpes zoster in the region of the trifacial nerve.

I concur with Dr. Boylan in the diagnosis, and consider it an extremely rare and interesting case.

DR. BOYLAN:

I have nothing more to add. As I said, my object was simply to exhibit the case and to draw out a discussion upon it if possible. I am glad it has proven of interest. I imagine that time alone will settle the diagnosis positively.

MECKEL'S DIVERTICULUM AS A CAUSE OF INTESTINAL OBSTRUCTION.

BY DUDLEY P. ALLEN, M.D., CLEVELAND.

Some three years ago, it was my good fortune to operate successfully upon a case of intestinal obstruction caused by Meckel's diverticulum. The rarity of operations of this sort, together with the favorable result, has given the case, to me, added interest, and led me to give the subject some consideration. Before entering upon a general discussion of the subject, a short review of the case in question may prove of interest.

The patient, A. A., was a laborer, thirty-four years of age, of excellent health, his only sickness having been an attack of typhoid fever in 1876. Since that time his bowels have been regular, and he has been well. On the night of August 22, 1889, he was seized with intense pain in the abdomen. The following morning his wife gave him senna tea, which was followed by a stool the same day, and daily from that time until the night of August 29, during which period he was perfectly well and performed hard labor. The night of August 29, he was seized with severe pain and vomiting. The next morning a physician gave him a hypodermic of one-quarter of a grain of morphine and an enema of three quarts of water. This came away without fecal substance. August 31 I saw the patient, with my friend Dr. Krause. The patient had no fever; the pulse was slow but not strong. The abdomen was distended, especially in the epigastric region. The whole abdomen was tympanitic,

except to the right mammary line. I could not diagnosticate the presence of free fluid in the abdominal cavity; no induration could be felt. Twice during the day the patient received an enema of three quarts of water, which was returned clear. At 4 p.m. I washed out the stomach and obtained water discolored by food, but without odor. Immediately afterward I performed laparotomy by median incision below the umbilicus, and found the small intestines largely distended and a considerable amount of amber-colored free fluid escaped from the abdominal cavity. A band was found extending from the region of the cœcum to a point one and one-half inches to the right and below the umbilicus. A coil of small intestine had twisted about this band and constricted. The division of the band between two ligatures relieved the constricted gut, and further examination showed the cause of constriction to be Meckel's diverticulum perhaps four or five inches in length, in part patent, but ending in a fibrous band. The abdomen was washed out and closed. The patient endured the operation well. After being returned to the ward, the patient vomited a brownish material of strongly stercoraceous order. At 8 p.m. his condition was good; the same night he passed flatus, and made an uninterrupted recovery. Patient was up and about September 24, and is now doing hard labor, having been entirely well since the operation.

Before entering upon a further discussion of the subject, it may be well to say a few words concerning the origin, location, form, etc., of Meckel's diverticulum. As you all know, it is the remains of the omphalomesenteric, or vitelline duct, extending from the lower portion of the ileum through the umbilicus to the yolk, or umbilical vesicle; usually with the development of the fœtus, this structure atrophies and entirely disappears; its origin is from the lower portion of the ileum. In the cases which I have examined, its location has been from fifteen inches to three feet above the ileo-

cæcal valve. Its form is various. The diverticulum may resemble a small intestine ending like the finger of a glove, hanging free into the abdominal cavity and having nearly the diameter of the gut itself. The opening in the gut caused by the diverticulum may vary from nearly the diameter of the gut itself to one which is very small. The diverticulum may be patent for only a short distance, or through its entire length, conveying the fecal material to the umbilicus, and there forming a fecal fistula, or the lumen may be wholly obliterated and the diverticulum be reduced to a simple fibrous band. At times the diverticulum is attached directly to the umbilicus or to the anterior abdominal wall. It is supposed that it may float freely in the abdominal cavity, and become adherent to any part, by chance. The most common point of adhesion, as I have observed it, has been to the mesentery, in the vicinity of the origin of the diverticulum, but there are cases recorded in which it has been adherent to the posterior part of the pelvis, to the internal inguinal ring, and to the fundus of the bladder.

As to its frequency, out of 3,400 recorded post-mortems at St. Bartholomew's Hospital, in London, it was found to be present 27 times, or in one out of every 126 post-mortems. In an interesting article by Mr. Durham in Quain's Dictionary, out of 1,839 cases of intestinal obstruction, 75 cases were found to be due to Meckel's diverticulum, or one out of every 24½ cases. My own study of pathological specimens has awakened in my mind the question whether or no more deaths ascribed to intestinal bands are not due to Meckel's diverticulum than have formerly been supposed. My reason for this is that in some pathological collections, which I have studied, some of the older specimens without complete history have simply been recorded as "obstruction due to the presence of an intestinal band," whereas in later cataloguing the curator has placed these as probable specimens of Meckel's diverticulum, although the location of the constriction has

not originally been recorded with the specimen. If this has been true of some museums which have been most carefully cared for, I feel confident that in many deaths which have simply been recorded as the result of constricting bands, the origin of the band has been in the omphalomesenteric duct.

When last in London, my attention was called to the collection of specimens of Meckel's diverticuli in the museum of St. Bartholomew's Hospital and the Royal College of Surgeons, by my friend, M. Frederick S. Eve, through whose kindness, and that of Mr. Edgar E. Willett, Durator of St. Bartholomew's Museum, I was enabled to study these specimens. Though I have carefully recorded and tabulated my observation of the specimens, together with the history, as given in the catalogues, it would be impossible to produce, in this paper, more than a few conclusions which have resulted therefrom. In St. Bartholomew's Museum are seventeen cases of diverticuli; eight are without a full history; of nine the history is complete. Of these nine all died, as the result of the diverticulum. Only one of them had been operated, and in this perforation of gut had taken place before operation. In the Royal College of Surgeons occurred four specimens, all of which had caused death. One of these patients had been operated, but the cause of the obstruction was not discovered. In all of the cases in which the history was recorded the part of the gut constricted was the small intestine, and in most of them it was stated that it was the lower portion of the ileum. The longest time which a patient had lived after appearance of the symptons of obstruction had been nine days; the shortest was thirty-six hours; the average was from three to four days.

Deaths from Meckel's diverticulum usually occur in youth or early adult life. The youngest case which I have found recorded was in an infant two years of age, the oldest an adult of sixty years. The diverticulum is said to occur four times more frequently in males than females. Though I have

looked up a large number of cases gathered in the literature of medicine, together with their history, it seems to me that the tabulation would give uncertain results, since all cases are not discovered and reported, and many are inaccurately observed.

The symptoms of intestinal obstruction, due to Meckel's diverticulum, are very similar to those of volvulus occurring in the lower portion of the ileum. They are pain, the location of which is sufficiently definite to be distinctive, together with vomiting and obstipation. Treves states that if obstruction be complete, the pain is continuous, whereas if the pain is not constant, it is an indication that the obstruction is not complete. This may be a general truth, but I have seen cases in which intestinal obstruction has been complete, which for days have been free from pain, although not under the influence of an anodyne.

The diagnosis of a case of obstruction as positively due to a Meckel's diverticulum must, of necessity, be rare, but there are certain considerations which would lead the surgeon to consider it among the possible causes of such obstruction. Obstruction due to Meckel's diverticulum, as has been said, is usually confined to the lower portion of the ileum, and, as is well known, obstruction at this point ordinarily does not produce either so early or so severe vomiting as when the constriction is higher up in the small intestine. At the beginning of the obstruction, in a patient with moderately thin abdominal walls, there may be found a local prominence in the region of the cæcum. As tympanitis becomes general, the distension of the abdomen will render this prominence imperceptible, but it is an important observation, and the recorded experience of many others, that occlusion of the bowel in the region of the cæcum causes distension of the central portion of the abdomen, more particularly in the early stage, in the epigastric region. In this way occlusion of the small intestine in the well-observed cases may generally

be distinguished from occlusion of the colon, since the latter produces correspondingly greater fulness in the flanks. One may further distinguish between the two by means of enemata, since if enemata be given, and especially if they render the region of the ascending colon dull, one can, with fair probability at least, exclude the presence of obstruction in the large intestine. This fact becomes more apparent when we consider that sudden stoppage of the large intestine low down is commonly due to volvulus in the the region of the sigmoid flexure, so that the presence of this condition could be excluded by means of enemata.

Intussusception, appendicitis, malignant growth and fæcal obstruction can, as a rule, be distinguished from any sudden closure of the lower portion of the ileum. It is not infrequent, too, that a Meckel's diverticulum may cause repeated attacks of partial obstruction, and repetition of such attacks would suggest this as their cause.

There is one point in diagnosis which I have mentioned in several papers, but have not seen mentioned elsewhere, which may, I believe, be an aid both in the diagnosis and in operation upon cases of intestinal obstruction, due to whatever cause. This is the presence of free fluid in the abdominal cavity. I meet it repeatedly in appendicitis, strangulated hernia, and in intestinal obstruction, particularly the two latter conditions. When I find symptoms of intestinal obstruction, together with free fluid in the abdominal cavity, I have come to consider it a strong argument in favor of operation as affording the only chance of relief, and this fluid also seems to me to improve the chances of the operation. I have seen cases of intestinal obstruction in which at an early stage I was able to diagnosticate the presence of free fluid in the abdominal cavity, and as the case progressed and grew more hopeless, either at the autopsy or at operation have found that this fluid had disappeared. When it is present as a result of constriction of the bowel it increases the hope that

this constriction has not yet reached a point where so serious damage has been produced as necessarily to prove fatal. This fluid, in my observation, tends to decrease, as extensive adhesions, due to advancing inflammation, take place. Care must be taken to distinguish between free fluid in the intestines, which may fall from one side to the other by changing the position, as I have seen it occur and been able to demonstrate at the post-mortem.

In operating for intestinal obstruction, if my suspicion is correct that it is more frequent due to the remains of the omphalomesenteric duct than is commonly supposed, since the clinical evidence is that this obstruction is located near the cæcum, the danger of its being overlooked as a cause of obstruction will be decreased and the operator will perhaps find with greater rapidity the cause of the difficulty. When obstruction of the bowels takes place, and the small intestine becomes largely distended, it is with the greatest difficulty that the bowel can be examined unless it be permitted to escape from the abdominal cavity. This escape always adds to the difficulty of the operation, especially in a tense abdomen, and to the danger of the patient. The prevention of the escape of the intestine has, in a series of reported cases, resulted in the cause of the obstruction of the bowel remaining undiscovered, and the death of the patient. All who have operated repeatedly in abdominal obstruction know with what difficulty distended intestine can be returned to the abdominal cavity unless the gas be removed, and the shock and danger to which the return of the intestine or the removal of the gas subject the patient. If the surgeon proceeds at once to examine for the possible presence of a Meckel's diverticulum, beginning with the cæcum, extending his search upward, it is a matter of but a moment to ascertain whether a Meckel's diverticulum be present or not. He thus avoids the loss of much time and the large escape of the intestines resulting from a less systematic search. Probably

the median incision is the best. When the diverticulum is found, it should be divided between two ligatures, since it must be remembered that the diverticulum is often patent, and might discharge fecal matter into the abdominal cavity. Though the intestine which is constricted may be very seriously decreased in calibre, it must be remembered that this does not necessarily prevent a subsequent return to its normal capacity, and great care must be taken to distinguish between the intestine which is temporarily impaired in calibre through constriction, and one which is permanently narrowed by organic changes. On account of the serious condition in which patients with intestinal obstruction are operated, it is probably best to content one's self with a division of the constricting band, and not attempt its resection.

Though there are many points which have received but brief mention, the time at our disposal will not admit of their further elaboration, and the object of this paper will have been secured if it directs attention of operators more specifically to Meckel's diverticulum as a cause of intestinal obstruction, and thus enables them more quickly and more easily to recognize and overcome the difficulty.

NOTE.—Since reading the above paper, in performing an ovariotomy I found a Meckel's diverticulum extending from the ilium and attached to the right horn of the uterus, close to the fallopian tube.

REPORT OF ABDOMINAL OPERATIONS FOR 1891.

BY C. A. KIRKLEY, M.D., TOLEDO.

Uncomplicated abdominal section is an operation so frequently done, is so simple, and its details are so familiar to every one that a report of such a case is not only uninteresting, but unprofitable; but cases in which trials and difficulties beset us impress their lessons. With the hope, therefore, that the following cases may not be unprofitable, and that they may even serve as "breakers ahead" to the inexperienced, they are reported to you. The task of reporting one's blunders and failures is not an easy or enviable one, but guide-boards as they are, they often point out a correct line of practice. He is stupid, indeed, who would make the same blunder twice. It may be said in defence of the report that the fatal cases, except perhaps two, were not promising at the time of operation, but the patients were given the chances to which they were entitled.

CASE I.

December 22, 1890. Mrs. K., of Toledo, gave the following history: Age twenty-seven years; light complexion; married in 1885; mother of one child, now four years old. She was very much emaciated, and had been ill since the birth of her child, at which time she had an attack of pelvic peritonitis, which has recurred more than once. The present severe illness began four months ago, has been attended with great pain, and has shown no sign of improvement. The temperature constantly above normal; the abdo-

men slightly distended, tender to the touch in the lower part, and on the left side a distinct circumscribed hardness. The uterus was enlarged, retroverted, crowded to the right side of the pelvis, very tender to the touch and fixed. The menses began at fifteen, had always been irregular, and very painful since the birth of the child, and had not appeared for the last two months. Dysuria was a constant and troublesome symptom. The nervous system was in an irritable and debilitated condition from pain and loss of sleep, and hysterical attacks frequently occurred. The diagnosis was tubo-ovarian disease of the left side, and though the prognosis was doubtful, laparotomy was the treatment advised. Drs. Bond and Collamore saw the case in consultation, and fully concurred in the diagnosis and treatment advised. January 9, 1891, laparotomy was performed at the patient's house. Dr. G. L. Thorne giving the anæsthetic and Drs. G. A. Collamore and Nellie F. Hollister assisting. Dr. F. Braun was present by invitation. Adhesions were firm and entensive, but hemorrhage slight, though the mass, which extended to the crest of the ilium, was removed with the greatest difficulty. It was irregular in shape, consisted of the left degenerated tube and ovary, was very hard in places and malignant in appearance. The condition of the patient did not warrant a thorough examination of the opposite side, but as far as could be ascertained the tube and ovary of that side were not diseased. This was an unusual and interesting feature. Though the patient was greatly exhausted from the operation, she rallied well, but died on the evening of the second day. Dr. Landman kindly made a microscopic examination of the specimen, and considered it a case of spindle-cell sarcoma. The father is said to have died of cancer of the stomach four years previously.

CASE II.

This patient was operated upon December 31, 1890, and

is included in this report because of its unusual interest. Mrs. S., of Oakwood, O., aged thirty-one, married in 1884, mother of one child, now three years old. She was a frail-looking woman, with light complexion, and an active, industrious housewife. Inguinal glands were slightly enlarged on the left side and there was great tenderness over the left broad ligament. The uterus was low down in the pelvis and yet enlarged and tender from an attack of metro-peritonitis, which occurred early in September, 1890, since which time she had been in almost constant pain. The menses were regular, began at fifteen, and did not again appear for a year. Dysmenorrhœa has been constant and severe since the birth of her child. Severe pain in the head, left side of the pelvis and sciatic nerve has been constant for months, and morphia has been depended upon for its relief. The mother and a brother died of phthisis. The first sign of ill health began at the birth of her child, with an attack of puerperal fever, and since that time she has had recurrent pelvic peritonitis once in two or three months. Laparotomy was performed at the St. Vincent Hospital; Dr. Geo. L. Thorne giving anæsthetic, and Drs. G. A. Collamore and Nellie F. Hollister assisting. Drs. G. A. Hollister, of Toledo, J. C. McClung, of Leipsic, and A. C. Sherrard, of Oakwood, were present by invitation. The anæsthetic was not well borne. Adhesions were firm and hemorrhage slight. The mass removed consisted of the tube and ovary of the left side. The tube was as large as the middle finger, its walls thickened and the fimbriated end closed. The ovary was twice its normal size and undergoing cystic degeneration. An indurated mass of omentum, as large as an English walnut and adherent to the fundus uteri, was also removed. The patient did well for three days, when the pain returned with its old-time severity. It was just as severe and required just as much morphia for its relief as before the operation. During the month of January, 1891, the history was turbu-

lent and discouraging for the most part. Though the pulse was 88 most of the time and the temperature normal, the former reached 120 at times and the temperature rose to 102°. The drainage-tube was removed on the second day. The abdomen was but slightly distended at any time. Though due antiseptic precautions were taken at the time of operation, there was an abscess at each and every stitch-hole on both sides of the incision, the lower angle of which had reopened—if it had united at all—to allow the pus to escape from the pelvic cavity. Though everything went wrong and the outlook anything but encouraging, she improved sufficiently to leave the hospital on February 9. Though the stitch abscesses did not heal, not much pus was secreted, but an enormous quantity came from the lower angle of the incision. This made it improbable that the subcutaneous cellular tissue or the stitch abscesses were its source. It must, therefore, have come from the pelvic cavity. March 5, 1891, Dr. Landman found tubercular bacilli in the pus. March 10, 1891, I saw Mrs. S. at her home. She had gradually grown worse, and was now greatly emaciated, having the appearance of one in the last stage of phthisis. After consultation with Drs. Hixon, McClung, Sherrard and Hollister, it was decided to reopen the pelvic cavity with the hope that washing out might be facilitated and more thorough drainage established. (I am under many obligations to the above-named physicians for their valuable counsel and assistance.) The cicatrix was separated from two to three inches, was very thin and in several places perforated by ulceration. About an inch of the lower end of the cicatrix was entirely separated, the angle of the incision never having united at all, thus exposing a granular surface. An incision about two inches long was made to the left of the old cicatrix, over the rectus muscle. Just beneath the skin the same granular structure was encountered, which, after careful and repeated examination, was supposed to be degenerated peritoneum,

as the subcutaneous structures had all disappeared. Instead, however, it proved to be degenerated and dilated intestine, adherent to everything in contact with it. The parietal and intestinal peritoneum could not be distinguished, they together constituting a degenerated mass. The opening in the intestine, so unfortunately made, was closed by a Lembert suture, in so far as the degenerated surfaces could be brought together. The slightest traction upon the suture would cut out unless the greatest precautions were taken. On exploriug the pelvic cavity with the finger it was found to contain a degenerated mass, the organs not distinguishable. The cavity was washed out with clear warm water and a flexible drainage-tube inserted. The incision was closed by interrupted suture with the hope that union over the adherent intestine would more securely close the unlucky hole. The patient was greatly relieved, and improved for about a week, at the end of which time a fecal fistula appeared. An unsuccessful attempt was made to close it by means of rubber plates. The incised tissues had not shown the slightest disposition to unite. A week later Dr. S. S. Thorne, of Toledo, considering it useless to attempt to close the fistulous opening, attempted to stitch the margins of the opening to the abdominal wall, thus forming an artificial anus. The separated parts were then brought together by suture. Dr. Thorne's effort was also unsuccessful. The patient died about the last of March, three months after the operation. This was one of those unfortunate cases in which operation was worse than useless.

CASE III.

Mrs. G., Oak Harbor, O., aged thirty-six, mother of five children, the youngest six months old, was operated upon March 25, 1891, at St. Vincent Hospital. She had been under the care of Drs. S. S. Thorne and W. D. Stewart, of Toledo, at the request of Dr. J. M. Stewart, of Oak Harbor, all of whom were present at the operation. Drs. George L.

Thorne and Nellie F. Hollister assisted, Dr. Thorne giving the anæsthetic. A definite history in this case was not ascertained. The uterus was normal in position, but fixed, and the pelvic roof was hard and very tender to the touch. Pus was discharging freely through an opening in the anterior vaginal wall, made by the surgeons three weeks previously, when two to three ounces of pus were evacuated. Adhesions were very firm and extensive, and the suppurating appendages from each side were removed. The pelvic cavity was thoroughly flushed, and a drainage-tube inserted. The patient never rallied from the operation and died within about twelve hours.

CASE IV.

Mrs. C., fifty-five years old, widow, a housekeeper, mother of one child fifteen years old. The abdomen was considerably distended, the largest circumferance measuring thirty-three inches and distinctly fluctuating. The uterus was atrophied and occupied the hollow of the sacrum. From the time of her marriage, in 1873, until her menses ceased, in 1888, she had dysmenorrhœa. She noticed her enlarged abdomen about four months ago, which was the real beginning of her illness. The diagnosis was par-ovarian cyst. Abdominal section was advised and performed September 25, 1891, at the St. Vincent Hospital; Dr. G. A. Collamore assisting, and Dr. Jas. Donnelly giving the anæsthetic. Drs. Aris Bond, G. A. Hollister and Haynes were present by invitation. The uterine appendages were perfectly normal. It may be said, in extenuation of this error in diagnosis, that the peritoneum was about the eighth of an inch in thickness and was not recognized at all until the escape of ascitic fluid. A drainage-tube was inserted and retained for two days. The patient did well for two or three days, when a troublesome diarrhœa began, which, however, was relieved within three or four days. She absolutely refused nourishment and stimulants of every kind, and deliberately expelled them

when given per rectum; insisted both before and after the operation that she would die, and finally died on the seventeenth day after the operation. The lessons in this case were impressive. One was the misleading resistance of the thickened peritoneum, so closely resembling cystic resiliency, and the other demonstrated the inadvisability of operating in cases in which the patient does not desire to live. Opening the abdomen should have prolonged this patient's life.

CASE V.

Mrs. H. L. K., aged twenty-nine, married May 27, 1891, dark complexion and cheerful disposition. The abdomen measured thirty-five inches in its largest circumference, the enlargement being on the left side. The uterus was crowded to the right side of the pelvis, was tender to the touch and fixed. The menses were regular, lasting five days, normal in amount, with much pain the first day, and began when she was sixteen years old. She had occasional attacks of hysteria. I had removed an ovarian tumor from the right side seven years previously. She first noticed the present tumor in August, 1891. The diagnosis was ovarian cyst of the left side, and the treatment advised ovariotomy, which was performed at the St. Vincet Hospital, December 2, 1891; Drs. G. A. Collamore and Hattie D. Walker, assisting, and Dr. J. L. Tracy giving the anæsthetic. Dr. B. Becker was present by invitation. There were no adhesions, no hemorrhage, and, therefore, no drainage-tube was used. The cyst contained about two quarts of straw-colored fluid, and weighed about one pound. In the evening, at 9 o'clock, I found the patient completely collapsed from secondary hemorrhage, with a pulse of 160 and temperature 100°. At 9 o'clock the next morning she was improved, and at 6 o'clock in the evening she was still improving, but there was some distention. Improvement continued until the morning of December 5, when it was ascertained that she had been vomiting for the last ten hours. At 11 o'clock at night the lower part of the ab-

dominal incision was reopened, the pelvic cavity washed out and a drainage-tube inserted. The pelvic cavity was filled with dark blood, and some clots, and when the incision was reopened, gas escaped from the peritoneal cavity. December 6, at 8 a.m., the patient died from septicæmia, produced by decomposition of retained blood within the pelvic cavity. There was no recurrence of hemorrhage after flushing. Dr. Collamore saw the patient twice in consultation. I am censurable for not reopening the abdominal cavity on the morning of December 3; but as the hemorrhage had ceased, it was thought best to rely upon the absorbing power of the peritoneum. A post-mortem examination was not asked for, therefore the real cause of hemorrhage cannot be given. The thin pedicle was tied with the Staffordshire knot, and the ligature again thrown around it as an extra precaution. The operation was very simple, and when completed no case could have been more promising.

Some of the cases operated on during the year recovered, and though some of them were very interesting, a detailed report of them would be too long; those recovering, therefore, will only be mentioned, viz.:

January 22, 1891.—Ovarian cyst.

February 28.—Fibroid degeneration of ovaries.

September 18.—Ovarian cyst.

September 28.—Cystic degeneration of ovaries.

September 29.—Ovarian cyst.

October 22.—Ovarian cyst.

October 28.—Hysterectomy for myoma.

November 12.—Fibro-cystic disease of both ovaries, and sub-peritoneal fibroid, springing from the fundus uteri.

November 17.—Ovarian cyst.

November 25.—Ovarian cyst.

December 14.—Ectopic pregnancy.

December 15.—Ovarian cyst.

A total of seventeen operations and five deaths.

REPORT OF ABDOMINAL OPERATIONS.

BY D. TOD GILLIAM, M.D., COLUMBUS.

The abdominal surgeon is always looking for surprises and always being surprised. In apparently the most simple cases he is often confronted by the most formidable complications, and conversely the apparently desperate ones occasionally prove the most manageable. Case reading has therefore a value of its own which can not be displaced by generalized deduction or the so-called typical descriptions.

After one has mastered the rudiments of abdominal surgery there is nothing so attractive or instructive as the recital and discussions of individual cases with their varying phases, their many perplexities, and the manner in which they were met. The following brief record of cases occurring in my practice during the last eleven months, while, in the main, commonplace enough, contain some elements of interest which I place at your disposal as a small contribution in the line of abdominal surgery.

CASE I.

Ovariotomy.—Mrs. C., Pine Grove, Gallia County, Ohio, aged fifty-five. Mother of a large family of children; began to enlarge six years ago. Operated Sunday, May 24, 1891, removing a compound ovarian cyst of forty pounds' weight. There were no complications and the patient made an uninterrupted recovery, with the exception of a swelling and soreness of left leg, which I attributed to phlebitis. No drainage.

CASE II.

Ovariotomy.—Mrs. O., Franklin County, Ohio, aged forty.

One child; began to enlarge one year ago. Operated Monday, May 25, removing multilocular ovarian cyst of fifteen pounds. No complications. She was of a nervous temperament and pulse mounted on second day to 118; small and wiry. For several days it fluctuated between this point and 90, but gradually fell to normal. Her convalescence was retarded by an inability to stand erect which required weeks to overcome. No drainage.

CASE III.

Broad Ligament Cyst.—Mrs. B., Columbus, Ohio, aged twenty-nine. No children. Has suffered much with a pain in the hypogastric region in the left side. Examination reveals cystic enlargement at site of pain and tenderness. Operated June 2. Cyst located in left broad ligament; was dug out, when it escaped from my fingers and rolled away. It was finally located on the right iliac region and removed. Hæmorrhage from the matrix very free and persistent, which was only stanched by carrying sutures under the floor of the cavity. The pulse-rate never went above 100, but she suffered greatly from pain for thirty-six hours. The catheter had to be used for four or five days. She made a good recovery. Flushing and drainage.

CASE IV.

Mrs. B., Franklin County, Ohio, aged fifty-six. Has been afflicted with abdominal growth for years, and for the last eight months confined to bed unable to move. She suffered continually and greatly. Is exsanguinnated and feeble to a degree that presages rapid dissolution. The extreme tenderness precludes satisfactory examination, although a tumor, hard, nodular, and irregular in its outline, fills the abdomen to above the umbilicus and the upper part of the pelvis. An exploration being suggested and eagerly accepted, on June 8 cut down upon it. I found a solid, elastic tumor, firmly adherent everywhere, and sarcomatous in appearance. This was incised and long needles thrust into it, but nothing

escaped but blood. Its tendency to bleed was very strong, and, after stiching up the cut, the thermo-cautery had to be used at the site of puncture. The patient was greatly prostrated and suffered much for several days. She gradually recovered, and in six weeks drove to my office over rough country roads a distance of seven miles, when I found the tumor appreciably diminished in size. I examined her again a few weeks since and can find no vistage of the tumor, although there is a degree of abdominal tenderness and inclination to harden the abdominal muscle that prevents an entirely satisfactory examination. She enjoys fair health and her appearance has changed wonderfully. This is one of those inexplainable case wherein an exploration cures.

CASE V.

Ovariotomy.—Miss S., Somerset, Ohio, aged thirty-seven. Ovarian cyst. Operated September 10. Drainage. Recovery uneventful.

CASE VI.

Ovariotomy.—Mrs. S., Wellston, Ohio, aged twenty-five. One child, two years old. The cyst was a large one, but entirely uncomplicated, and was quickly removed. She was put to bed in good shape. At this time I was called from the city, and on my return on the fourth day found her septic. She died on the seventh day. I am persuaded that the drainage-tube was the cause of death. In similar cases I do not now use it.

CASE VII.

Operation for Ventral Hernia.—Mrs. O., London, Ohio, aged twenty-eight. Had been operated on at Cleveland four years ago for ovarian tumor. A long incision had been made, and tedious suppuration ensued. A hernia gradually formed and eventually assumed enormous proportions. Apparently the entire contents of the abdomen, except the fixed organs, occupied the hernial pouch. An exploration revealed the impossibility of using the peritoneal operation, and the

Simons method was used. She made a tedious convalescence, and a secondary operation was necessary before complete union could be secured. She is now well and can hardly find words to express her gratitude.

CASE VIII.

Wandering Ovule.—Mrs. S., Franklin County, Ohio, aged twenty-six. Was taken suddenly ill with pelvic pain and prostration. An abdominal enlargement was detected. Recurring attacks kept her in bed for five weeks. Chills and sweating, with varying temperature, finally induced me to advise section. As she lived six miles in the country, she was brought to the city, and the operation performed November 12. As she was very short and fat, an incision long enough to admit the hand was necessary for exploration. A cyst containing a quart of limpid serum was found attached to the region of the bladder and could not be removed. It was drained and stitched to the abdominal walls. This is probably what Tait classifies as a wandering ovule. She made an uninterrupted recovery.

CASE IX.

Laparotomy for Small Tumor.—Mrs. W. F. H., Thornville, Ohio, aged twenty-four; married two years; no children. A year ago, during sexual intercourse, she was seized with a severe pain in right hypogastrium, and fainted. From that day to this she has suffered much from pain and soreness in the same locality. Examination revealed an enlargement, apparently cystic, in front of and to the right of uterus, about the size of an egg. The uterus was pushed to the left. An incision was made into it, but nothing but a loose-meshed muscular and connective tissue encountered. This, of course, did not admit of removal, but the left ovary, which was found diseased, with its corresponding tube was removed. She recovered promptly.

CASE X.

Removal of Uterine Appendages for Uterine Fibroids.—

Miss D. N., Residence City, aged twenty-four, has uterine fibroid size of double fist, from which she suffers beyond endurance. The tubes and ovaries were removed December 9, one of the latter being cystic. She recovered without an untoward symptom.

CASE XI.

Removal of Uterine Appendages.—Mrs. P. Q., Hardin County, Ohio. Suffering for years with intractable uterine hemorrhages. After exhausting all the usual and unusual remedies and repeated curettings without avail, the tubes and ovaries were removed December 10. The right ovary and tube were adherent, the left ovary enlarged and cystic. She was a very intractable patient, and suffered from psychological disturbance almost to the point of insanity. Hæmatocele of the right broad ligament ensued, and, despite warning, she got up and left the hospital on the ninth day. She suffered a backset as a consequence, and the last heard from her, six weeks afterwards, she was just convalescing from the same.

CASE XII.

Removal of Uterine Appendages.—Miss M. F., from Minnesota, aged twenty-three. Had oöphoritis some years since and was treated by Dr. Byford, of Chicago. Tubes and ovaries removed December 30, much hemorrhage following, which apparently subsided after half an hour. She was thoroughly irrigated, and a drainage-tube was inserted. The tube was aspirated every hour, and from half an ounce to an ounce of blood removed each time. During the day vomited several times, after which the quantity of blood increased to two or three ounces, and so continued through the night. On the morning of the second day vomited greenish fluid. An ounce and a half of blood at each aspiration, which gradually diminished.

On morning of third day looks and feels better; blood progressively diminished.

During operation on patient in adjoining room the smell of ether sickened her and she vomited repeatedly; bleeding increased; she is restless; complains bitterly of pain; looks bad. Pulse 125. Ordered calomel, to be followed by salts in broken doses.

During the preceeding night bowels moved freely hæmorrhage dimished, vomiting ceased, and she passed flatus.

This case gave me much uneasiness. She continued to go up and down with a pulse-rate varying from 112 to 135. Chills, sweats, vomiting, purging, great prostration, and along with it all a large hæmatocele formed on the right side. On the seventh day the tube was removed with difficulty, bringing with it a plug of clotted blood and fibrin. It had been gradually elevated after each aspiration. A fistula ensued, and, after three weeks more of fluctuating improvements, she was discharged with a slight remaining fistula. I saw the patient some weeks subsequent, and she was well and happy.

CASE XIII.

Hysterectomy for Uterine Cancer.—Mrs. M. E. S., Columbus, widow, childless, aged fifty-two. Examination revealed entensive cancer of body of the uterus. The uterus was removed on February 12, and the patient made an uninterrupted recovery.

CASE XIV.

Removal of Uterine Appendages.—Mrs. C. H., Columbus, Ohio, aged thirty-two, six children. The patient has been bedfast for many weeks with circumuterine inflammation. Operated on January 2. The adhesions were very dense, implicating everything in the vicinity. A large quantity of pus escaped while breaking adhesions. The bleeding was profuse. Tube removed on third day. All went well until the fifth day, when the pulse suddenly mounted to 125, with great pain and much tenderness of abdomen and anxious expression. This was followed on the sixth day with an

abundant discharge of fecal matter through the tube-opening. The alarming symptoms immediately abated, and in due time the fistulæ healed, the patient being discharged on the twenty-sixth day.

CASE XV.

Ovariotomy and Salpingectomy.—Miss E. F., aged thirty, La Porte, Indiana. This was a case of simple ovarian tumor, and presented no difficulties, but the corresponding tube was of the size and appearance of the small intestines. It was also removed on March 3. She recovered promptly.

CASE XVI.

Ovariotomy.—Mrs. S., Vaughnsville, Ohio, aged fifty-two. This was an uncomplicated ovarian cyst of fair size. Operated March 12. She recovered promptly.

CASE XVII.

Parovarian Cyst.—Mrs. M. M., Marietta, Ohio, aged twenty. Operated March 12 for parovarian cyst. Patient recovered.

CASE XVIII.

Hysterectomy for Uterine Fibroid.—Miss E., Cincinnati, Ohio, aged forty-two. Large subserous uterine fibroid, lying across brim of pelvis and filling abdomen. On section, April 8, found intestines and omentum adherent to upper and back part of tumor. Intestines were also adherent to abdominal parietes, across the track of the incision, half way between the umbilicus and xyphoid. These could not be separated without great danger, and the removal of the growth through the opening rendered difficult in consequence. It was finally brought through and the *serre-nœud* applied. She made an uninterrupted recovery.

CASE XIX.

Removal of Uterine Appendages.—Mrs. M. S., Marietta, Ohio, aged twenty-six, has suffered for the last four years, being confined to bed most of the time. Operated on April 11. Tubes and ovaries almost disorganized, and intes-

tines very dark and soft. Succeeded in getting the parts away, as I thought, without injury to important structures, but a few hours afterward a fecal odor was perceptible, when contents of tube were withdrawn. At two o'clock the succeeding morning fecal matter appeared in the tube and the odor was horrible. On the third day gas escaped from the tube. The tube was removed, and all went well until the eighth day, when, after brisk catharsis, fecal matter again made its appearance through the fistulous opening in large quantities. After this it gradually subsided, and on the eighteenth day she was sitting up, the fistula having closed to within half an inch of the surface, and the bowels having acted a number of times without accident. She is now rapidly improving. The point of interest in this case is the immunity of the peritoneum from the results of fecal extravasation coming on so soon after operation.

CASE XX.

Exploratory Laparotomy—Mrs. B. T., Columbus, Ohio, aged twenty-six, one child. Had been an invalid since before marriage. Is said to have had oöphoritis, followed by peritonitis, three years ago, in which her life was despaired of. A long, serious illness followed the birth of her child—about twenty months since. On examination, failed to find serious trouble with the tubes or ovaries, but the condition was marked on the right side by a tense swelling, which was exceedingly tender. Indeed, the entire hypogastric region and vaginal vault were so tender as to greatly embarrass efforts at examination. She had paroxysms of great pain which usually lasted several hours, and were uncontrollable with even large doses of morphine. The last menstruation had been delayed and was scant, without apparent cause; as with all of her previous troubles, there had been no variability in this function. The swelling increased and the paroxysms became more intense. Here was a history pointing to a circumuterine inflammation of several years'

standing, a delayed and scant menstruation, a tense and abnormally sensitive enlargement in the region of the right broad ligament, and paroxysmal sickening pains, gradually increased in severity. Of course, the child was not two years old, but that goes for little. Any one would have feared ectopic gestation. I laid the matter before the family in all its aspects, and left them to decide whether or no an exploration should be made. Two questions were put to me. "Is the operation free from danger?" "Do you expect to find an extrauterine pregnancy?" To the first I answered that no surgical operation is free from danger, and especially an invasion of the peritoneal cavity. But, on the other hand, an ectopic gestation, should it exist, was much more dangerous than the exploration. To the second question I answered: No, I do not expect to find an ectopic pregnancy, but I fear it. Furthermore, I stated that I was not there to urge or even to ask for an exploration, but to make a statement, and it was left entirely for them to decide what course we should pursue. They decided in favor of interference, and accordingly, on April 13, the exploration was made. I found tubes and ovaries on both sides healthy, with no indication of preexisting disease, and I found an hæmatocele in the right broad ligament, which was not interfered with. Notwithstanding it was only twelve minutes from the time the first incision was made until she was bandaged and ready for bed, she was greatly shocked, and within a few hours presented a fearfully sunken appearance. On the third day she began to rally, and on the tenth was sitting up, the first time for over two months. The hæmatocele is rapidly disappearing.

CASE XXI.

Laparotomy for Cyst of the Broad Ligament.—Mrs. C. F. M., Columbus, Ohio, aged forty-five. No children. About four years ago had removed ovaries and one tube, the right tube being inaccessible. She got better for awhile, then began to complain of the right side, which was always

tender. This became so unbearable that a secondary operation was decided upon. The line of incision was to the left of the median line, and the bowels were found so firmly adherent along the line of the first incision that it was deemed imprudent to interfere with them. A small broad ligament cyst was found, which, while endeavoring to shell out, bursted under the finger. It was dissected out with a portion of the remaining tube. She recovered promptly, although suffering much from rheumatic pains, to which she has been subject. The date of this operation was April 25.

CASE XXII.

Removal of Uterine Appendages.—Miss A. W., Columbus, Ohio, aged twenty-eight, a confirmed neurasthenic, was sent to me two or three months ago to have the appendages removed. On examination, I could not find sufficient cause for interference, and declined to operate. She went on from bad to worse, had profuse and frequently repeated menstruation, was rapidly losing flesh, was tortured day and night with pelvic pain, and finally I yielded to the importunities of her physician, herself, and her relatives, and operated on April 28, shielding myself behind the metrorrhagia as an excuse. The tubes were healthy. A small parovarian cyst was springing from the left broad ligament, and the right ovary was cystic, bursting and collapsing under the finger in attempting to bring it to the surface. The broad ligament was tense and unyielding, the mesosalpinx very short, and it was with the utmost difficulty that the tubes and ovaries could be delivered. The patient has been very nervous, but otherwise doing well and her recovery is now assured.

The only death in this list of twenty-two cases occured in the simplest case in the lot, and can, I think, be attributed with much certainty to the careless handling of the drainage-tube, as the nurse was overworked and had in charge a number of other cases, some of which were suppurative. This I did not know at the time.

DISCUSSION OF DRS. KIRKLEY'S AND GILLIAM'S PAPERS.

The discussion upon Dr. Kirkley's paper "Report of Abdominal Surgery for 1891," was postponed until after the reading of Dr. T. Dod Gilliam's paper, entitled "A Report of Abdominal Operations," when the discussion followed as follows:

DR. RUFUS B. HALL:

I wish to bring the attention of the Society to one point, a very essential one in my judgment, in which I am convinced that you will agree with me—the question of drainage.

In the first paper, in the five fatal cases drainage was used in one case only. We cannot say, that if the drainage-tube had been used that they would all have recovered. But if you will recall the clinical history of those cases, you cannot but agree with me that the drainage-tube would have made their condition more comfortable, if it had not saved the lives of the patients. In the report of the last speaker, who drained occasionally, I want to call attention to the fact of the drainage-tube in Case XIII to sustain my position. Case XIII progressed admirably until the drainage-tube was removed, on the third day, when she went bad. On the sixth day she was almost dead, when fortunately Nature came to her aid and reopened the abdomen and drained it. She recovered. I have no hesitation, if a patient goes bad after a drainage-tube has been removed, in reopening the abdomen, and I do it at once. I think this one case would justify the essayist in placing the drainage-tube in every one of his cases, even if it is not needed. I am an advocate of universal drainage in abdominal section.

The essayist cites a death where the drainage-tube was used, but very justly says that it was not due to the tube but to the carelessness of the nurse. If we are so situated as not to be able to have a competent nurse, then I believe that it would be better not to put in a drainage-tube. But we ought not to operate where we cannot control our patients and cannot control and look after a drainage-tube. The operation should be deferred or the surgeon should take care of it himself.

DR. KIRKLEY:

As to the drainage-tube, I think it was used in four of the cases; I am sure it was used in three. I can hardly see

why the drainage-tube should have been used in the other cases, even in the one that died of secondary hemorrhage, because there was not the slightest adhesion. The pedicle was thin and very securely tied. Still the patient died. I can hardly think want of drainage was a factor as a cause of death. Drainage is proper and ought to be employed in cases in which the contents of cysts or tubes have escaped within the abdominal cavity or in which there is anticipated hemorrhage, or if excessive adhesions have been separated. But I cannot see the necessity of draining the abdomen, when there is absolutely nothing to drain.

DR. GILLIAM:

With regard to the drainage-tube I shall have to take issue with Dr. Hall. Everything has its place, and everything is good for something. There is no doubt but that drainage is of immense value, and indispensable in some cases. But it is often done when it is not necessary. Mr. Tait says, "What is the use of draining when there is nothing to drain," and I think there is a good deal of sense in the remark. If a drainage-tube is properly handled all the way through, if the person taking care of it is scrupulously exact in the management of the tube, it will ordinarily not do much harm; but under ordinary circumstances it is capable of doing harm. It is now a fixed belief in the minds of many that the drainage-tube is responsible for a great many fistulas where they would not exist otherwise. If not properly cared for a drainage-tube is a high road to septic infection, because we have the animal fluids on both the inside and outside, and there is no better medium for germ growth than these animal fluids.

My report of twenty-four cases with only one death would seem to indicate that the use of the tube is not essential to success. The question is being tried in different parts of the world, and I think it is the rule to use it much less freely than formerly.

NOTES ON FRACTURE OF THE SKULL.

BY GEORGE W. CRILE, M.D., CLEVELAND.

CASE I.

In January, 1892, at 3 p. m., J. S., while at work aboard a vessel, fell into its hold, a distance of fifteen feet, striking his head violently. A lacerated and contused wound over the left parietal eminence was the only external evidence of injury. Some headache was the only subjective symptom. The ears, orbits, respiration, pulse, motion and sensation were not sensibly disturbed. He walked to a carriage in which he rode home. When I saw him, seven hours later, he was in a profound stupor. The pupillary space was normal, no irido-plegia. The pupils reacted to light perhaps a little sluggishly, When aroused he would speak, when undisturbed he would remain in deep repose. He was removed to a hospital, ice-bags applied to his head, ergot and bromides given in full doses internally. The following morning his stupor was deeper than before. It was then decided to trephine the skull. At the beginning of the operation stupor was profound, the pulse good and the respirations somewhat labored. Chloroform was administered, a very small quantity being required. A disc was removed about one and one-half inch below, and anterior to the wound. When the first disc was almost separated respiration suddenly failed, while the heart beat regular and full at 110. Artificial respiration was resorted to immediately. Respiratory stimulants were administered promptly, but without avail. Artificial respira-

tion was maintained twelve minutes, when he seemed a little improved, but unable to respire without aid.

One pole of a faradic battery was placed over the nape of the neck, the other over the upper third of the sternum. By opening and closing the circuit, imitating respiratory rhythm, a very good respiration was maintained. During this time the removal of the first disc revealed a very large clot of blood. It was quite impossible to remove all this clot through one opening. Another disc was removed anterior to the first near the frontal eminence. From these apertures a very large blood-clot was extracted. As the operation was concluded the patient died.

An immediate autopsy revealed a fracture of the base of the skull, the line extending across the body of the sphenoid in the anterior fossa, extending upward to the middle of the parietal bone of the left side. The coronal suture was separated through two-thirds of its extent. There was no fracture within an inch of the point of the application of the external violence. The dura mater was intact; the brain healthy, with no apparent lacerations. The clot extended in the form of an irregular circle, whose circumference passed through a point one inch above the left ear, the parietal eminence, and the middle of the frontal region. The space occupied by the clot held three and one-half ounces of water. The brain weighed fifty-two ounces.

What caused death? The amount of chloroform administered was quite small and in the hands of an experienced narcotizer. Shock was not alarming at the time of the cessation of respiration. The trephine could do no damage, as the brain was not within its reach, I am inclined to believe that the transmitted pressure from the clot area made a profound impression on the respiratory centers in the medulla, leaving them verging on a paralysis, so that the administration of an anæsthetic and jarring and shock of the operation precipitated an impending paralysis, or the sudden failure of the respira-

tion was simply coincident with the operation. The blood-clot was so firmly packed upon the brain that its removal was quite difficult.

CASE II.

J. G., aged thirty-eight, while engaged in elevating an engine, a "sweep" of a windlass broke, striking the side of his head with tremendous force, causing a compound comminuted fracture the entire length of the side of the head. The blow felled him to the ground unconscious. His pulse was slow, intermitting and irregular; respirations normal. He was immediately trephined.

There was effusion into the supraorbital region of the left eye, later the inferior; but no escape of blood or other fluid from the ears. There was an area of depressed bone five inches long and one and three-fourths of an inch in breadth. The depressed portion was comminuted. A fissure of the skull extended beyond the limits of the depressed area at each end. There was extensive laceration of the brain, some of the brain-tissue being forced into the opening in the calvarium. The depressed skull bones were elevated by removing a disc at the margin of the fracture to gain leverage for the elevator, The fragments of the bones and the blood-clots were removed. Free drainage was provided for and the wound closed. During the first twenty-four hours he had periods of restlessness, followed by deep stupor. In his struggles he always turned from right to left, over and over, due probably to impairment of the motor centers of the left side. There was retention of urine, constant manipulation of the genitals, indicating probably irritation of the medullary centers.

After the expiration of twenty-four hours, finding no improvement, the trephine was again applied, a disc removed in the temporal fossa, the temporal muscle deflected, and a clot, causing a depression whose capacity was more than a fluid ounce, extracted. After the operation the patient rallied

well, became feebly conscious, the restlessness disappeared, and the prognosis was much brighter. The following night the former train of symptoms again supervened, and at the end of three days he died of intra-cranial inflammation. No autopsy was allowed. An inspection of the wound showed the usual progresss of repair by first intention. There was no well-marked paralysis of any muscle-groups, but the motor-power of the entire left side was much diminished. Consciousness was never regained. The treatment consisted in placing an ice-coil upon the head, and exhibiting repeated doses of calomel after a preliminary carthartic dose of magnesium sulphate. Potassium bromide was given to secure rest. It became necessary later to resort to hypodermatic injections af morphia.

CASE III.

In November, 1890, a man, aged forty-five, was kicked twice in the head by a horse, causing compound fractures of the left superior maxillary malar and the nasal bones of the face, and a compound comminuted fracture of the skull. There was an area of depression three by four inches; the deepest depression was about three-fourths of an inch. The frontal sinus was shattered and the pieces driven down upon the brain; the right supra-orbital plate and the supercilliary ridge were driven down so as to considerably narrow the orbital space. The anterior lobe of the brain was lacerated. The indriving of the bones forced some of the brain-tissue out of the wound.

The patient was partially conscious, with no other marked objective symptoms than the gross lesion. He was immediately trephined; the skull was relieved of pressure by removing the comminuted pieces of bone and elevating a large depressed ledge whose distal side was sufficiently connected with the uninjured skull to support itself when elevated. I was obliged to remove another disc on the opposite side to effect adequate elevation of this ledge.

Sand, bits of gravel, dirt, comminuted bone and hair were thrown down upon the lacerated brain in confusion. After their removal the brain was so much depressed that the finger could readily explore the orbital plate, the ethmoid and a great portion of the anterior fossa. The dura mater was separated over most of the anterior fossa of the skull. There was a free communication with the nose. Hemorrhage at the close of the operation became very active; hot gauze-packing was effectual in arresting it. The frontal sinus was packed with double cyanide of zinc and mercury gauze, closing the communication with the nose. A few catgut sutures were placed in the dura mater, the scalp sutured, the wound drained, and the nasal cavity irrigated with an antiseptic solution of 1: 10,000 bichloride of mercury. When the patient had rallied from the anæsthetic he expressed himself as feeling better. Recovery was rapid. The frontal sinus was kept packed with gauze to protect the brain against infection from the nose.

The capacity of the cavity of the frontal sinus after the operation was five drachms. About sixteen months have elapsed since the injury. The sinus has all but closed. The communication with the nose remained more than a year. When irrigating it, he found it very easy, by applying his fingers to his nose, to blow the lotion out of the opening in the cavity of the shattered frontal sinus in the forehead. The sense of smell was abolished for about six months, when he gradually regained it. The only cerebral symptom is dizziness when stooping or when he closes his eyes.

CASE IV.

A coal-dock laborer, while ascending a ladder aboard a coal-vessel, received the contents of a bucket of coal upon his head, throwing him back into the hold of the vessel, inflicting lacerated and contused wounds on every available inch of his scalp and a compound fracture of the skull. His entire head was a mass of coal-dirt and blood-clot matted in

the hair. The scalp was shaven and subjected to a bichloride pack, and later it was trephined. The skull had sustained a depressed fracture over the frontal region. A disc was removed; the skull was elevated and the lacerations revived and sutured. The wounds all united by primary union, and a rapid recovery followed, the only treatment being rest, a saline cathartic, and bromides.

The patient returned to his work soon in apparently good health. In this case there was a longitudinal fissure along the side of the skull about four inches in length.

CASE V.

P. S., aged twenty-seven, while driving an express-wagon, was thrown from the seat to the ground, striking his head violently on a curbstone, thereby sustaining a compressed comminuted fracture of the skull, the fragments of bone being driven into the brain substance.

He was found unconscious; he could be aroused to make irrational replies to questions when sharply put to him. He was trephined about an hour later and the depressed fragments removed or elevated, leaving the brain free from pressure. The operation left the stupor perhaps a little less profound. The wounds were well drained and dressed. Calomel was administered and an ice coil applied to the head. Bromides in twenty-grain doses failed to diminish the restlessness. He was placed in a darkened quiet room. The restlessness became so great that hypodermic injections of morphia were administered.

After a struggle of five days he succumbed to intra-cranial inflammation. During the illness he never recovered consciousness. The restlessness could not be overcome by anything but hypodermic injections of morphia. There was no paralysis of any muscle-groups. An autopsy was not made. The scalp wound had healed by first intention. The symptoms in this case were the same as in the preceding fatal case—delirium, restlessness, jactitation, respirations

heavy, with a puffing at the corners of the mouth, manipulation of the genitals, some fever, gradually accelerated pulse, dry skin, coated tongue, retention of urine, etc.

CASE VI.

J. M., aged twelve, while coasting down a hill in the dark, collided with a wagon, his forehead striking against the hub of the wheel, thereby sustaining a compound comminuted fracture of the skull. I was called to see the boy half an hour later. There was a depression of about one-half an inch and an open wound. He was rational; the functions of respiration and circulation were but little disturbed, except that the heart-beats were full and slow. He was in a stupor from which he could be readily aroused. Inasmuch as consent to take him to a hospital could not be obtained, the operation was performed under very unfavorable environments. The home was a hovel. The meagre utensils were used as trays and basins. The wound was amplified so as to expose the extent of the fracture. The frontal bone was comminuted—the frontal sinus crushed—and the roof of the right orbit was fractured and depressed. The left nasal bones were fractured.

I dissected the periosteum from each fragment that was to be removed before excising it. The supercilliary ridge, which was depressed almost half an inch, was elevated. The fractures were complete and so fully comminuted that it seemed advisable to not attempt replacing them. On the right side there was a large fragment about two inches long and one-half inch wide whose bony connection was wholly severed, but the periosteum still was partially intact. The free margin had fallen in contact with the brain, its attachments not being strong enough to hold it up. Inasmuch as the brain itself was depressed about half an inch below the inner surface of the skull, and not wanting to remove so large a piece of bone, nor yet believing it safe to allow the ragged edge of the bony ledge to press on the brain while

the same was regaining its former dimension, I decided to try to prop and support the ledge of bone by means of another piece that had been discarded in the operation. The bone was broken to fit in its new position as a prop. A silk chiral was passed through the scalp, passed under the bone, then brought out through the scalp again; another was passed through the scalp and the periosteum, the scalp again in the ledge receiving the support. The bone replaced had been completely denuded of periosteum, and it was cold, as the night was a very cold one and the room very chilly. The wound was flooded with a 1 : 2000 solution of bichloride. The wound healed throughout by first intention. The brain-tubes were removed on the same day. The clinical record was peculiar in that the morning temperature was higher than the evening. There is still sensitiveness of the right eye to light and some ptosis of the lid. The bone has grown and the contour of the cranium is but little, if any, altered.

As to prognosis, I think there will be a sufficient and firm repair of the gape. Ossification eventually will take place.

CASE VII.

A train-man, on January 21, 1892, was struck by an overhead bridge, throwing him to the ground unconscious. When found he was bleeding sharply from both ears and the mouth. There was effusion into the orbits of the eyes. Following this injury, he was unconscious several days, when he rallied slowly, remaining in a dazed, stupid condition for several weeks, during which time he recollects nothing. He complained of a persistent headache, partial loss of function of the left leg, with some spasm of the muscles, a queer feeling in the left arm, hyperæsthesia of the left calf and foot, with constant pain in the same area; loss of hearing in the left ear, and an impairment of the memory. In a general way, he felt that he was a changed man. His face wore a worn and worried

expression, and usually the countenance of stupid dullness. The reflexes were normal. There was unimpaired vision. The tympanum of the left ear was ruptured, presumably in the accident; at least the loss of hearing dates from that time.

He was given iron, arsenic and strychnia in tonic doses, and increasing doses of potassium iodide running up to sixty grains daily; his back over the spinal column and the skin over the course of the sciatic nerve were cauterized with a thermo-cautery; mild galvanic currents were passed from the forehead to the nape of the neck, and massage directed. The improvement under this treatment was rapid.

At the present time he has discarded his cane and is no longer lame; he has gained greatly in weight; he has almost entirely recovered the sense of hearing in the left ear; but at intervals he still seems to feel some pain in the calf of the left leg. He has reported to his employer for work.

The ruptured tympanum, persistent hemorrhage from the ear, the unconsciousness, together with the mental, motor and sensory symptoms following the accident, place the diagnosis on high probabilities, if not a certainty, of fracture of the base of the skull.

THREE AUTOPSY REPORTS.

I wish briefly to mention three autopsies in cases which death quickly followed head injuries:

In the first there was fracture of several ribs, rupture of the diaphragm, and fracture of the base of the skull. The line of fracture extended through the strongest and heaviest part of the base—the body of the sphenoid and the petrous portion of the temporal.

Another patient was a ship-carpenter who fell about forty feet. The only evidence of a direct injury to the skull was a lacerated and contused wound over the parietal eminence. There were fractures of seven ribs near the spinal column, as well as a fracture of the head of the femur. The

patient died in two days. At the time of the accident the scalp wound was amplified and search made for fracture, but none was found. Autopsy revealed a fracture of the base extending through the petrous portion of the temporal bone and part of the sphenoid to the median line.

A third was struck by an engine upon the forehead, the autopsy on whom showed a fracture of the base of the skull, the lateral fissure extending down to the median line of the base and upward about an inch above the ear. There was some extravasation of blood upon the dura mater.

CONCLUSIONS.

From this meagre and imperfect report of ten cases which have come under my professional care within eighteen months, I do not feel justified in drawing final conclusions, inasmuch as the late and often grave complications attending head injuries, coming in the form of epilepsy, alienation, etc., may yet arise. In the four autopsies the line of fracture, speaking generally, has passed through the densest and strongest portions of the skull, lending its weight to support the vibratory theory of fractures remote from the point of application of external violence. The line of fracture in three of them began at some distance from the point of injury, tending to emphasize the importance of amplifying largely the external wounds in the scalp, especially in the direction of the base. Of the six cases in which immediate trephining was practiced, three recovered; two of the fatal cases had been subjected to much extensive crushing of the skull, causing such deep lacerations and severe contusions of the brain, as to render them intrinsically fatal.

In the third fatal case respiration suddenly failed while operating. In this case the capacity of the space occupied by the clot was three and one-half ounces. The sudden respiratory failure in cases of extreme pressure is, I believe, a frequent occurrence, and I do not believe it was occasioned in this case by the shock alone, the operation alone, or the

anæsthetic alone, but to the culmination of all, or it was simply a coincidence.

In compound comminuted fractures of the skull, with or without depression, immediate trephining should be resorted to; in compound fractures with depression, immediately trephine. In simple fracture of the skull without depression, if the violence has been direct and applied upon a small area, the fissure well marked, and the calcareous elements of the bone well developed, in any case, I believe, in view of the slight danger of the operation and the high probability of spiculation of the internal table of the skull, trephining should be immediately done. After head injuries in which a diagnosis of fracture has not been made, and symptoms arise, the use of the trephine should be governed by the laws of cerebral localization and the urgency of the symptoms. In fractures of the frontal sinus, if there is free communication with the nasal cavity, gauze packing, healing by granulation from the bottom and sides of the wound, with perhaps a plastic operation later, is the safest course; in fractures of the frontal sinus in which there is no nasal communication, the entire cavity may be allowed to fill with blood clot and immediately closed according to the method of Schede.

On the question of returning bone to the skull after its removal, the sixth case has been to me a lesson in the physiology of bone. The piece of bone half an inch wide and an inch long, which had been discarded early in the operation on a very cold winter night in a cold room for about twenty minutes, then placed in a cold solution of 1:2000 of corrosive chloride of mercury for a few minutes, its angles cut to fit a new position, and finally replaced without accurately fitting, took on new life, and now maintains the continuity of the skull as if it had never been injured.

In the medical treatment of intra-cranial inflammations, when grave, contrary to the violent objections raised against them by many, I have frequently resorted to opiates to quiet

the patient, and it seems to me with decided benefit, and, so far as I could observe, no harm. In several cases full doses of bromides, rectal injections of chloral, hypodermatic injections of hyoscyamine, the sedatives and narcotics generally, as well as the art of a trained nurse, failed utterly to restrain the restlessness and extreme jactitation that was rapidly exhausting the patient, and, I believe, fanning the flame of inflammation already raging. When at last this fury was found to give way under a hypodermatic injection of sulphate of morphia to calm repose, I felt that the patient was the better for it.

With the hopes of obtaining more light on this important subject from the members of this august body, I have ventured to offer these imperfect notes.

THE TREATMENT OF CERTAIN FORMS OF CLUB-FOOT.

BY W. E. WIRT, M.D., PH.D., CLEVELAND.

Bradford and Lovett, in their work on "Orthopedic Surgery," make the following statement: "The literature of the treatment of club-foot is too often that of unvarying success. It is sometimes as brilliant as an advertising sheet, and yet in practice there is no lack of half-cured or relapsed cases—sufficient evidence that methods of cure are not universally understood." A. M. Phelps, of New York, in an article on the open incision method, says that "primary osteotomy, astragalus resection, cuneiform tarsectomy, open incision, and prolonged and interrupted traction with intricate machinery have all run the gauntlet of observation, and the roadside is strewn with lamentable failure." Recently a practicing physician, who formerly did considerable surgery, said to the writer in conversation: "Yes, Doctor, I have operated on a good many cases of club-foot, but I have quit the whole field." Upon being asked how that was he replied: "Because I never cured a case yet." The object of this paper is to deal with those cases in which the surgeon gets relapses, and more especially with relapsed or inveterate cases, so-called.

I will, therefore, exclude from this paper such forms of club-foot as simple equinos, varus, calcaneo-valgus, spurious valgus, Shaffer's classification of non-deforming talipes, and but a word as to infantile equino-varus, and the mild forms in later childhood, but will limit the paper to the severest

forms of equino-varus and the inveterate cases of this deformity.

And before beginning the subject of treatment, a brief study of the anatomy with relation to this deformity will help us to appreciate what ought to be done.

ANATOMY.

In congenital talipes we find both ligaments and bones involved. In bone variation from the normal consists mostly in a change of axes of the planes of the articular surfaces: There is also some change in the shape of the bones. In the ligaments the change consists in a shortening on the inner or concave side of the foot, and a lengthening on the outer or convex side. The ligaments, therefore, very materially assist in holding the foot in the deformed position.

In talipes equino-varus the foot is held extended (upon the leg) and flexed upon itself and inverted, with the toes turned inward. The patient stands on the outer border and front portion of the foot, and when the deformity is extreme, on its dorsum. The weight of the body tends to increase the deformity, and pressure produces bursæ and callosites on its outer border. Flexion at the ankle is prevented by the shortened tendo-achillis, and eversion and extension of the foot at the medio-tarsal joint by the tibialis posticus, deep flexors, fascia and ligaments of the sole and inner side of the foot. The os calcis is drawn from a horizontal plane to a more or less vertical plane. The cuboid, by reason of its ligamentous connection, follows the inward twisting of the os calcis. The astragalus, on account of being wedged in between the malleoli, does not admit of much internal rotation, but its abnormality of position consists of a rotation forward and downward on the horizontal axis, the result of which is that only the posterior portion of its superior articular surface comes in contact with the tibia, and the anterior part of the articular surface projects beneath the skin of the dorsum of the foot. Another factor recognized

as of importance in the production of equino-varus, and which also retards correction, is a change of the angle of the neck of the astragalus with the body of the bone. The neck of the astragalus in the adult foot turns inward twenty-six degrees, according to Parker. In club-foot this angle varies from the normal to over sixty degrees. This increase of the angle of the neck, as seen in club-foot, is considered normal in the monkey (by Parker and Shattuck), yet the monkey is not club-footed. The result of this condition is to approximate the scaphoid and inner malleolus, frequently to the extent of their coming in contact, in which cases facets are formed. On mechanical principles the inner border of the foot must be more twisted than the outer border, so that we may have a marked angle formed on the inner border, while there is only a gentle curve on the outer border. This also produces a spreading out of the front part of the foot like a fan, making it broad in proportion to the rest of the foot. The changes which the ligaments have undergone form an obstruction to cure, except in the milder cases. The plantar and internal lateral ligaments are the ones chiefly involved. Parker and Shattuck found on dissection that the deformity persisted after removing the muscles, and that reduction was not possible until certain ligaments had been divided. In infancy the shortened muscles are but a weak resistance, and their division at this early age is not especially to be recommended.

EARLY TREATMENT.

I have but a word to say, in passing, of the treatment in mild cases, or of the treatment in infancy. In the infantile cases treatment should be begun as soon as possible. Often it can be started a few days after birth. Treatment is begun at this early period because it is well known that the foot grows more rapidly at this time than any other, and also that the bones, while cartilaginous at birth, will soon be osseous, and the deformity will then be much harder to correct.

Tenotomies are not recommended at this time, at least in the average case. There may be some cases of so severe a grade of deformity that the operation might seem to be indicated. Plaster-of-paris seems to be the most reliable dressing in these cases.

Schreiber, in his work on "Orthopedic Surgery," says: "In the new-born, of course, it cannot be a question of complicated apparatus and bandages." And farther on says: "The objection to plaster bandages, that it interferes with active and passive movements, does not hold, for the bandage is changed every eight to fourteen days when an opportunity is given for bettering the position of the foot by passive manipulations." Edmund Owens, F.R.C.S., in his work on "Surgical Diseases of Children," says in speaking of this subject: "After the foot has been for about half an hour in the strained position insured by the plaster, discomfort seems to have worn off. It is not so, however, when a child is being treated by a Scarpa's shoe. In that case the improvement is obtained chiefly through the localized pressure of narrow straps, a pressure which creates a constant irritation, and which, causing a chafe or sore, demands a vexatious discontinuance of treatment. With the gypsum bandage the pressure is evenly distributed over the foot in the corrected position, and with due care no sore should occur." And further on he says: "The plaster-of-paris method enables one to treat the club-foot of a tender infant with security and success, and without the expense of a mechanical apparatus requiring daily attention."

Bradford and Lovett speak favorably of gypsum in this connection. At the Hospital for Ruptured and Crippled, New York City, where the writer was formerly House Surgeon, children in arms are treated in the out-door department by this method, the bandage being changed every two weeks. Recently at my clinic, at the University of Wooster, I entirely corrected the varus in a three-year-old child, with

a moderately severe grade of double equino-varus, in the space of six weeks by plaster-of-Paris bandages changed twice a week.

After the deformity is corrected by the above method the foot should be put into a retentation apparatus, which is a brace, and it should be worn inside the shoe, and for a period of time sufficient to demonstrate that there is no tendency to relapse, which may be a matter of a year or more. The deformity should be entirely corrected before the child attempts to walk.

OLDER CASES WITH MODERATE DEFORMITY.

In children of from four years and upwards tenotomies and considerable correcting force are required. Panas says of the employment of mechanical means alone in the older children: "The results obtained by the employment of appliances alone not only leave a great deal to be desired, but in a small number of fortunate cases, when the cure has taken place, it is only attained at the price of a great deal of suffering and a very long time, several months, or one or two years, and sometimes more."

I will not discuss the tenotomies; suffice to say that the resisting tendons and plantar fascia are cut, the most important being the tendo-achillis, the foot over-corrected, and put in plaster-of-paris. Willard, of Philadelphia, is quoted as saying that he considers gypsum the great protector of the orthopedic surgeon against the inefficiency, ignorance and carelessness of parents, in all grades of club-foot. A month later the plaster is removed and a retentive brace, worn inside the shoe, is applied.

SEVERE AND INVETERATE CASES.

We now come to that class of cases which is the text of this paper, *i.e.*, the severer cases, those which the surgeon finds do relapse, and those on whom a number of operations have been performed with relapses in each instance, and which we call inveterate cases.

For their treatment I will discuss the following methods: (1) Treatment by tenotomy, fasciotomy, section of ligaments and tarso-calsis; (2) by open incision method (Phelps); (3) astragaloid osteotomy; (4) tarsal resection; (5) removal of astragalus.

The choice of methods in a given case depends upon the amount of bone change, upon the age of the patient, also upon the amount of time the patient can devote to the treatment.

1. In a large majority of even severe cases a cure can be effected by cutting the tendons, fasciæ and ligaments followed by the use of powerful levers to wrench the foot into shape. Krauss expresses himself thus: "There is no conceivable form of club-foot in which tarsal resection is justifiable, except it be in the case of one that is persistently painful in which there is no prospect of a good result from orthopedic treatment. In such a case resection may be fairly tried instead of an amputation." Wolf claims that equally good results may be obtained by "redressment" of the foot. That the profession do not agree to this is evident from the fact that tarsal resections and removal of the astragalus is being done from time to time by our best surgeons.

To carry out the method I am now speaking of, the foot is prepared antiseptically, and by use of the small fascia knife, which I now show you, the tense bands of fasciæ in the sole of the foot are subcutaneously divided. This same knife may be used to cut the tendons, except in adults or large children. With a longer-bladed knife the anterior band of the internal lateral, the astragalo-scaphoid and the calcaneo-scaphoid ligaments are cut. Then, by means of this wrench, called the Thomas tarsoclast, the foot is twisted into position, or better, over-corrected, except the equinos, for we have not, as yet, cut the tendo-achillis, using it as a point of resistance, by which means the cavus or excessive arch of the foot may be overcome. The cavus and varus

being corrected, the tendo-achillis is cut subcutaneously and the equinos over-corrected. The foot is immediately put up in plaster-of-paris, and remains in this dressing for about a month. Should the operator not be able to entirely correct the deformity at this time, by a second sitting, several weeks later, it probably may be accomplished. On removing the plaster at the end of a month, measure is taken for a brace to be worn inside the shoe, and the foot again put up in plaster until the brace is finished, at which time it should be carefully fitted to the foot.

2. *The open incision method*, frequently called Phelp's operation, consists of an incision on the inside of the foot, in front of the inner malleolus, and then dividing the resisting parts as they present themselves. The ligaments are severed as they are reached, and in severe cases osteotomy of the neck of the astragalus is performed. In the worst cases resection of a wedge-shaped piece of bone from the body of the os calcis is required. The open wound heals by granulation or organized blood-clot, the foot in the meantime being held by plaster-of-paris. In many cases of club-foot the ligament posterior to the ankle-joint is shortened, and in such cases it requires more than manual force to correct it. Phelps has gotten up a system of levers by which any amount of resistance at the heel or in any direction can be overcome. The indications for this operation, as stated by Phelps, are: "Exclude all cases which by manipulation or force can immediately, or in a reasonable length of time, be cured." Then if the deformity cannot be corrected by a subcutaneous operation the open incision method is indicated. Dr. Phelps tabulated ninety-three cases operated upon by this method in which perfect results are obtained for sixty-six, and *good* and *fair* for the rest, except *one*, in which there was a relapse. The after-treatment, as carried out by Dr. Phelps, is the hooks and adhesive plaster method. For myself I prefer the brace.

ASTRAGALOID OSTEOTOMY.

An increase in the angle formed by the neck of the astragalus with the body of the bone in the club-foot has led certain operators to cut down on the bone, and, by means of an osteotome, the neck of the bone divided. The deformity is then corrected, and the neck of the bone united at the proper angle. The operation is comparatively a new one, and its value is therefore somewhat undetermined. It would seem, though, that it is insufficient in many cases. The operation would be indicated when the surgeon could determine a marked twisting of the neck of the astragalus.

TARSAL RESECTION.

Among the operations of the tarsal bones which have been performed for the correction of the club-foot may be mentioned the following:

1. Section of the neck of the astragalus.
2. Removal of the astragalus.
3. Removal of the cuboid.
4. Wedge-shaped tarsal resection.
5. Removal of the astragalus and external malleolus.
6. Removal of the cuboid, astragalus and scaphoid.

The first one is insufficient, and has already been considered. The last two result in a too great mutilation of the foot.

Tarsal resection (removal of the cuboid) was first performed by Sully, in 1854, at the suggestion of Dr. Little. The removal of the cuboid alone has often proved to be unsuccessful, as it does not correct the plantar flexion. The removal of the astragalus has proved more successful, as an operation consisting of simply removing one bone, than possibly any other. This operation is warmly endorsed by Rupprecht, Vogt, Lund, Bröckel, Margary, Gibney and Willard. *For the operation* it is claimed that the arch of the foot is retained, and that it does not interfere with the further development of the foot. *Against the operation* it is stated that it

frequently does not overcome the cavus, and that torsion of the foot remains. Especially is this true in adults. It is further claimed that a shortening of the inner border of the foot, *i.e.*, relapse, often occurs. We performed this operation in a number of instances at the Hospital for Ruptured and Crippled with fairly good results.

Gibney performs the operation by making a diagonal incision of about two inches directly over the head of the astragalus. The bone is then removed by scalpel, scissors and bone forceps. After the usual dressings the foot is held in plaster-of-paris, and later is retained in position by a brace.

The method which competes with astragaloid resection for first place in the correction or severe grades of deformity is by the removal of a wedge-shaped piece from the external border of the foot. O. Weber removed a wedge from the os calcis and cuboid. Davy and Davis-Colley removed the cuboid and then portions of the scaphoid, astragalus, os calcis and cuneiform. Nicoladoni removed only the caput tali and a piece from the anterior process of the calcaneus. Recently I removed the entire wedge from the os calcis with excellent results.

In the performance of the operation an incision is made from the tuberosity of the scaphoid across the dorsum of the foot to the outer border of the cuboid. The periosteum is scraped back and a wedge-shaped piece of bone is chiseled out, having its base at the outer border of the foot, and with its apex at the scaphoid bone. The best results are claimed for the operation when the wedge is taken equally from the cuboid and the os calcis. The tarso-metatarsal joint should be avoided. The wound is dressed antiseptically, and position of the foot maintained by plaster-of-paris. The plaster is removed at the end of four to six weeks and a walking brace applied.

Much has been said for and against these two operations, *i.e.*, astragaloid and tarsal resection, some even going so far

as to say that they are never required. But it would seem, beyond doubt, that they are absolutely required in some of the inveterate cases.

The choice between these two operations depends somewhat on the operator. Lately the astragaloid resection seems to be in the ascendency, and it must be said that after the removal of the bone the foot usually comes into good shape, but the objections raised are as to its final results. One objection that I have not mentioned is that in later life the malleoli sometimes separate, allowing the os calcis to be pushed up between them.

From the histories of some fifty odd cases of club-feet treated by operative measures I will select some seven or eight which will show the results obtained by the above-described methods. Several of them were cases treated at the Hospital for Ruptured and Crippled:

CASE I.

Johnnie L., aged three. Double equino-varus of moderate severity. Both feet turned directly inward, and stands on outer border of feet. I entirely overcame the varus in six weeks by plaster-of-paris, changing the bandages twice weekly for the first three weeks, then, by operation, cutting the fascia and tendons subcutaneously, I straightened the feet and put them in plaster-of-paris. One month later I removed the plaster and applied braces with shoes worn over them. Correction of deformity complete at this time.

CASE II.

John A., aged five and one-half. Right foot in extreme equino-varus, plantar surface not touching floor. Left foot in slight valgus.

December 14, 1888.—Subcutaneous division of plantar structures and achillotomy. Foot brought into good position by means of manual force.

December 20.—Plaster-of-paris removed, and foot again put up in plaster in better position.

January 1. 1889.—Manual force failed to correct deformity, so Thomas' tarsoclast applied twice. Foot forced into calcaneo-valgus and fixed in plaster.

May 15, 1889.—Foot has relapsed by reason of long convalescence from pneumonia and later diphtheria, so the foot was forced into calcaneo-valgus by tarsoclast and fixed in plaster.

June 2, 1889.—Foot corrected by manual force and fixed in plaster-of-paris.

November 11, 1889.—Patient wore plasters up to September 25, since when he has worn braces. Discharged to-day wearing braces, with foot in good position.

CASE III.

Bernard B., aged six, Double congenital equino-varus. Had an operation on feet when eight months old, performed at Kracow by Prof. McHolowwitz. Child walks on outer and front part of feet. Marked bony detormity of the head of the astragalus.

March 9, 1889.—Since entrance into the hospital, nearly eight months previous, the child has had numerous applications of plaster-of-paris. The left foot is now perfect, Right lacks some of being up to desired result.

August 2, 1889.—Tendo-achillis of right foot cut and tarso-clast used to bring foot into better position. Fixed in plaster-of-paris.

September 24, 1889.—Boy has been wearing brace, but still has some deformity. Was etherized and tarsal resection performed, removing wedge from the astragalus and cuboid.

November 18, 1889.—Wound entirely healed. Foot in good position. Discharged to-day wearing brace inside of shoe.

CASE IV.

Adolph A., aged eight. Right congenital equino-varus. An operation was performed in Germany on the child's foot

when three months old. A second operation was performed at Bridgeport, Conn., when he was five years old.

July 18, 1890.—On admittance into hospital the boy's foot was in marked varus, and but little equinos. Astragalus very prominent, giving a high grade of deformity. On outer aspect of foot is a deep cicatrix showing site of former operation, also scars on inner side of foot. Deformity can be but slightly overcome by manual force.

July 19, 1890.—Patient under ether. An incision made over astragalus, periosteum pushed back with knife and scissors and an attempt made to remove the astragalus. Bone very difficult to remove. By accident bone is broken off at junction of middle and posterior third, and as deformity could be entirely corrected, remaining third was left behind. Dressed antiseptically and fixed in plaster.

November 19, 1890.—Wound did not unite primarily, but by granulation, the bone cavity taking several months to fill up. It is now entirely healed, with a fair amount of motion. Foot at right angles. Discharged wearing brace with shoe.

CASE V.

Wm. V., aged five. Left congenital equino-varus of moderate grade of deformity. Had been treated in out-door department of Hospital for Ruptured and Crippled for three years by plaster and brace. On admittance to the hospital the varus could be nearly overcome by manual force. Equinos could be reduced to eighty degrees. Child walked on outer side of foot, neither heel nor toe touching.

April 15, 1889.—An incision two inches in length made through soft parts over astragalus on outer side. The periosteum pushed back, the astragalus grasped by forceps, and with scissors and scalpel the bone was dissected out intact. Incision was closed with cat gut, and horse-hair drainage was used. Dressed antiseptically and fixed in slight calcaneo-valgus by plaster-of-paris.

June 23, 1889.—Wound of operation entirely healed, and has been wearing brace for about a month. Slight varus remains. Discharged wearing shoe built up on outside.

CASE VI.

May A., aged twenty-two. Double congenital equino-varus of the most severe grade, both feet turning directly backwards, and she walks on the dorsum of the foot. Patient had several operations performed on feet during infancy, but with no beneficial results. Before entering the hospital, Dr. Gibney had performed tarsal resection on right foot, also the open incision method on the inner aspect, but the operation was followed by a severe form of septic fever.

February 22, 1888.—Patient under ether. An incision on the right foot, two inches long, was made from the head of the astragalus downwards and backwards to junction of cuboid and os calcis. Sheath of perineal tendons opened and the tendons held out of way. Wedge, with base of one and one-half inches, and with apex at inner side of scaphoid, removed, involving anterior end of calcaneum, posterior end of cuboid, and head and neck of astragalus. Phelp's operation, consisting in division of all the tissues on inner and under side of foot performed, then section of tendo-achillis. Foot brought around to almost normal position and fixed in plaster-of-paris. The wound healed by granulation, with the discharge of small spiculæ of necrosed bone. Wound entirely closed in three months. For some months plaster and braces were used alternately, the plaster to get the feet into better shape, and the braces to hold them in the improved position.

November 22, 1888.—Nine months after the original operation the patient was etherized and the tarsoclast applied with section of the tendo-achillis.

April 2, 1890.—A little over two years from date of first operation in hospital we find the feet in good position, with ability to walk over a mile without fatigue or difficulty.

CASE VII.

Myrtle B., aged eleven and one-half years. Left congenital equino-varus. Patient has had six operations performed on foot, the first when three days old, and all were failures. She has been in hospitals several times. For six years she has worn a brace, which often produced ulcers requiring it to be left off for longer or shorter periods. Finally, physicians told the child's mother that the foot could not be straightened, and that she had better have it taken off and wear a cork foot.

November 11, 1891.—Child under chloroform. I divided the plantar fascia, calcaneo-scaphoid ligament and the tibialis-anticus tendon, and then applied the tarsoclast, but was unable, after several efforts, to entirely correct the deformity.

As I was only allowed one operation to correct the deformity, the mother not wishing the child to ever again be put under the influence of an anæsthetic, I decided on tarsal resection. I made an incision three inches long from the head of the astragalus to outer border of the cuboid. On reaching the bone I found that an exostosis, which had caused much trouble in wearing a shoe, projected from the anterior external angle of the os calcis. A wedge, with a base of about three-quarters of an inch, including this exostosis, I removed entirely from the os calcis. This allowed the foot to come into good position. The wound was closed by cat-gut stitches, and the foot fixed in plaster-of-paris. The wound healed by primary union, and six weeks from date of operation patient was walking nicely, foot well turned out, wearing brace. Four months after the operation she discarded brace and is walking well, wearing an ordinary shoe.

CASE VIII.

Lillie A., aged twelve. Left paralytic equino-varus of moderately severe grade. Child has had four operations performed at various times, but without much improvement. Walks on outer and front part of foot.

May 3, 1892.—Child under chloroform. I cut the plantar-fascia and calcaneo-scaphoid ligament subcutaneously. I then applied the tarsoclast interruptedly for from six to eight minutes, gradually getting the foot into shape. Then after cutting the tendo-achillis the foot came into good position, and was fixed in plaster-of-paris. A month after the date of the operation I will apply a brace worn inside of the shoe.

DISCUSSION.

DR. N. P. DANDRIGE:

The difficulty which the doctor suggests with regard to crutches I often encounter. I think it wise to put the child on crutches at first, as it protects the joint considerably. I have not attempted to enforce the use of them for any length of time, but when the splint is first applied I think it enables the child to use the traction splint more readily, and it affords a very considerable protection to the joint against concussion which ensues upon walking.

The discovery which the doctor has referred to in regard to the effect of aspiration upon abscess cavities was one which has impressed me very much. My own feeling had been against aspiration; however, I have had occasion to treat some abscess cavities with aspiration very recently. In the future I shall use it more frequently.

Excision should have no place in joint disease until thorough conservative treatment has been fully tried and for a long time.

INTUBATION VERSUS TRACHEOTOMY.

BY THOMAS HUBBARD, M.D., TOLEDO.

It is not the purpose of this essay to array arguments for and against these two operations, as though they were both striving for more or less exclusive surgical endorsements as life-saving procedures in all forms of laryngeal stenosis. The last five years have contributed sufficient experience in the comparatively new operation, intubation, so that we may draw some conclusions, and relegate it to its proper sphere of application. Tracheotomy has held the field for so many years previous to the introduction of the new operation that opinions concerning its real merits have been quite accurately formulated. Under the stimulus of the recorded successes of intubation, there has been considerable improvement in the technique of tracheotomy, and the effects of such rivalry have been really beneficial.

When viewed as distinct surgical procedures, the two operations present such strong contrast, both in mechanical effects aimed at and in point of danger to the patient, that we must conclude that they will soon be relegated to their spheres of usefulness. It is the design of this paper to bring out a discussion on the general indications for each operation. The field is ample for both, and a careful discrimination and application in accordance with special indications will ultimately result in increasing the popularity and usefulness of both operations.

The statistics of intubation are so much more favorable than those of tracheotomy in all forms of pseudo-membran-

ous laryngitis that it would certainly indicate that the former is to become the popular operation. Tracheotomy is destined to become the operation of the more desperate class of cases, and even to-day it is not fair to compare the statistics of the two operations, for obvious reasons. Thus we see that our respect for the merits of the older operation must be enhanced by the more grand and tragical sphere of its practical application.

It is rather unfortunate that the two operations demand such different kinds of manual dexterity and surgical skill, and for this reason largely, the advocates of the two are inclined to endorse the one to the exclusion of the other, following the inclinations of their special qualifications. The fact is, however, that in the light of the latest statistics of intubation, the records of tracheotomy, previous to the new operation, when tracheotomy had the field to itself, suffer by comparison, and it must be admitted that it fell far short of its possibilities on account of general indifference and discouragement.

The question of the identity of the two clinical groups of pseudo-membranous laryngitis, popularly called croup and diphtheritic laryngitis, is scarcely debatable, it seems to me. Then we must always bear in mind that there are simple inflammatory and congestive conditions of the larynx, which may produce stenosis as dangerous in its immediate effect as the infectious forms. Such conditions obtain after measles and traumatic laryngitis, both merging into what is called œdema of the larynx.

The pathological condition which, above all others, creates the demand for surgical interference, is stenosis within the larynx. Whether or not the disease which causes this begins primarily in the larynx, this is the symptom which first calls our attention to the necessity for surgical interference by mechanical appliances. The larynx being the orifice proper of the respiratory apparatus, and having its

natural lumen so narrowed that it does not admit sufficient air to the lungs, it becomes the point of resistance to all the forces that are brought to bear in the frantic endeavors of the physical respiratory apparatus. Obviously, atmospheric pressure on inspiratory attempt, and simple atmospheric compression during expiration, are the forces brought into activity. What is an approximate estimate of the relative power exerted during the expiratory and inspiratory acts? In adults, we may place this at two to one in favor of the expiratory act, ranging in actual pounds pressure per square inch from one to three and a half, while during the extreme effort at inspiration, the atmospheric pressure ranges from one-half to one and a half. In persons of flat chest and weakened thoracic arch we may find that the force exerted during expiration is four times as great as that available for inspiration. The cartilaginous structure of the chest wall in young children lessens inspiratory power, and I presume that this ratio, four to one, would obtain in most cases.

The atmospheric pressure that can be brought to bear at the point of greatest stenosis in a child of five to seven years, is probably about three-quarters of a pound per square inch. When we consider how loosely anchored the larynx is, and how unremitting is this alternate up and down pressure, we would expect it to give evidence of a positive nature when the stenosis is at this point. In simple diphtheria of the larynx, this organ moves with a freedom corresponding to the degree of stenosis and respiratory force. Further, we see that it is highly probable that in cases of diphtheria of the larynx, that total asphyxia is rarely caused by primary interruption of the expiratory act, but by prevention of inspiration. I arrived at this conclusion from clinical observation, and a few experiments in spirometry strengthen it. The success of the operation of intubation has been a great surprise to many. When first proposed, surgeons familiar with tracheotomy asserted that intubation

could not possibly succeed where membrane formed below the mouth of the tube, since such membrane would act as a valve when loosened, and close the lower orifice. Experience has proven these theoretical objections to be exaggerated.

Where the membrane in the trachea is sufficiently loosened to come out as a cast, the same condition generally obtains in the larynx, and the tube and the membranous cast are ejected together. The cylindrical tubes recently added to the intubation set are easily ejected when the lower orifice is suddenly blocked.

Concerning the special indications for each operation, it is an exceedingly difficult matter for a consultant, called in at a late stage of laryngeal diphtheria, to make an accurate diagnosis of the pathological conditions present. There is no doubt that some cases receive almost no benefit from either tracheotomy or intubation, and it would be fortunate if we could avoid operation in these cases. Most of the published reports include the statement that "all cases, no matter how desperate, were operated on, where consent could be obtained." There seems to be a fear of the accusation of selecting cases, and this course often brings the operations into discredit, that will mould public opinion against these surgical procedures.

We may, then, profitably discuss a few of the indications that will guide us in a legitimate discrimination as to this class of fatal cases. Where the operation is positively requested there should be no hesitancy, but it is quite another matter for the physician to urge the family to consent in positively hopeless cases.

As regards intubation: There are many cases of laryngeal diphtheria in which the stenosis of the larynx seems to lessen as the membrane forms down in the trachea. This is evidenced by the change in the character of the cough, and often by a return of the power of phonation. The larynx, being no longer the seat of greatest obstruction to breathing,

is comparatively immobile; the epigastric and episternal depressions are not so pronounced, and auscultation may give positive evidences of tracheal involvement.

During the pre-exudative condition the congestion of the ventricular bands produces most of the stenosis, and this may subside somewhat as free exudation of membrane takes place and the seat of inflammatory congestion is lower in the trachea. Laryngeal stenosis may exist for several days, threatening life, and then subside, leaving a firm, thin membranous deposit. I recall several cases in which there had been alarming evidence of obstruction in the larynx for twenty-four hours or more; then this subsided, the evidences of anguish passed away, the breathing became less rapid, and a quite natural sleep followed. The voice returned, hoarse and croupy, but not the stridulous whisper present in the early stage. There was no stupor, and in fact everything indicated general improvement. And yet, these children gradually succumbed in two or three days to a very slowly progressive dyspnœa, probably due to a gradual invasion of the bronchi, or pneumonia of some kind. They did not really suffer after the subsidence of the initial laryngeal stenosis.

Is intubation indicated in such cases? If the membrane is still dry and firm, and no evidences of loosening, it would seem to me that intubation is not indicated. If, however, there is still a dangerous degree of asphyxia, and the cough sounds loose, there may be some hope from intubation, even if we are positive that the membrane is forming in the trachea. Such cases must be very closely watched, however, to aid in extracting loosened fragments of membrane. I believe that there will ultimately be a class, properly called diagnostic intubation, including such cases as the operator has little or no hopes of relieving, and where the operation is done in response to a request and simply to confirm a reasonably probable diagnosis. Little harm results to the

patient, but the reputation of the operator often suffers. I have known intelligent children to accurately locate the point of obstruction at the bifurcation of the trachea, and have subsequently confirmed this by tracheotomy. What good can possibly come from intubation in such cases? Tracheotomy is indicated, and if performed low down may allow of extraction of much membrane.

From these facts it becomes apparent that the operation of intubation has not reached the acme of its success in relieving suffering until we have formulated diagnostic conclusions that warn us against attempting it in certain cases. From many statistics on intubation, we find that about 15 or 20 per cent. of the cases operated on are not materially benefited, and of these 2 to 5 per cent. are positively distressed by the tube in one way or another. It becomes a proper field of study to avoid intubation in these cases if possible, not for the purpose of improving the statistics of the operation at the expense of tracheotomy, but simply to alleviate suffering, and on general principles to avoid any surgical procedure that does not give reasonable promise of beneficial returns.

The indications against the advisability of tracheotomy are of a more desperate character. We may often operate, where requested, against hope. All operations that are looked upon as last resorts are surrounded with desperate chances. In general, profound toxæmia, positive evidences of the existence of pneumonia or diphtheritic bronchitis (which latter can only be determined by one having studied the case during its development), and failing heart-power, are all conditions which should seriously influence our prognosis, and determine the manner in which we should advise the family. The most extreme degrees of asphyxia and consequent cyanosis, or even unconsciousness from this cause, are not, in themselves. positive contra-indications. There are so many important circumstances connected with this op-

eration, as a last resort, that we cannot hope to present them all with any degree of clearness.

We may now mention a few important details of intubation. Twice I have seen asphyxia, that would have been fatal had I not been present, caused from very simple errors in management. One, hydrogen peroxide sprayed into the fauces caused the formation of a tenacious plug near the orifice of the tube, and inspiration was positively stopped. The child was already moribund when the tube was extracted, but the irritation of the larynx, caused by extraction, produced a feeble respiratory effort, and then, after an interval, respiration was resumed. On another occasion a draught of brandy-sling caused the same obstruction. When I reached the bedside the thorax was almost collapsed, even the residual air having been expelled in the vain attempt to force the tough plug of mucus away from the neighborhood of the upper orifice. Inspiration was absolutely stopped, and but for prompt removal of the tube death was certain.

These and other similar cases have convinced me that the greatest danger comes from a possibility of drawing membrane or coagulated mucus which may have been coughed through the tube, or formed in the pharynx, into the upper orifice of the tube. The respiratory forces most readily succumb to this, and we should take some precautions to avoid this accident. I have known apnœa from stoppage of the inspiratory act, to be relieved by simply passing the finger down and wiping away the plug or membrane that stopped the upper orifice of the tube. As a rule, the oft-repeated use of an antiseptic alkaline-spray—at least at every severe attack of coughing—will greatly facilitate the expulsion of membrane. Avoid all coagulating lotions, such as bichloride, iron salts, and hydrogen peroxide, lest the coagulated product stop up the tube.

The string attached to the head of the tube must usually be removed. If it is left and fastened on the cheek, unruly

children will often draw out the tube, or a bad attack of coughing will so alarm attendants that they will extract it, thereby allowing a quick return of the original laryngeal stenosis. If it must be left attached, it should be passed between two back teeth, if the patient be sufficiently intelligent not to attempt removal by getting the tongue under it, since the most tractable patients may bite the string in two during sleep, and it falls back into the pharynx. It might be necessary to pass the string out of the nasal passage in threatening cases, where the operator must be at some distance. There is little danger from food getting into the tube if the patient be drawn over the edge of the bed, lying on the back, and fed by allowing the liquid to flow down the roof of the mouth, thus passing down the post-pharyngeal wall to the gullet.

As to the improved technique of tracheotomy, the most important features are: Application of thorough antisepsis to the wound and the use of safety strings. Ointments should be avoided in making antiseptic dressings within the wound, for they flow down into the trachea and encourage the formation of inspissated kernels of mucus about the mouth of the tube. Oil is not a good lubricant of the canula for the same reason. Warm alkaline washes may be dropped directly into the canula, and are most useful in freeing the tube from plugs of mucous membrane. The safety-strings are introduced at the time of the operation, one on either side, into the cut margins of the tracheal incision, and being brought out on either side, may be tied, like the tape, around the neck. This allows of safe removal of the outer canula, since by drawing on these strings the orifice is held open and brought near the surface of the neck. An intelligent attendant can keep the tracheal incision open by simply drawing on these strings, if by accident or necessity the outer tube is removed.

There are very many important questions that have

not been mentioned in this brief, but we hope practical, review of the subject, which can better be dealt with by those of larger experience than the writer. We believe that we have, in the operation of intubation, as developed by Drs. O'Dwyer and Waxham, a substitute for tracheotomy in the great majority of cases. This is true, not only on account of its intrinsic merits, but also because it is more readily popularized with the people. At the same time we must not be blind to its short-comings, nor hesitate to recommend the reserve operation, which latter may, with one grand stroke, as it were, transform defeat into success, and score a triumph to the art of surgery where all else had failed.

APPENDICITIS.

BY J. A. M'GLENN, M.D., MT. PLEASANT.

This subject has been very carefully studied by many of our most competent observers during the last few years. Although much progress has been made in the treatment of this disease, there is unquestionably room for further advance. If the precise point of origin can be clearly established and the course of the pathological changes traced step by step from the time of inception to termination, and thoroughly understood, we shall then be in better position to interpret accurately at all stages the symptoms that are produced by the pathological processes constituting this affection. It will teach how to outline early and concisely the most desirable course of treatment, and that which will offer the greatest expectation for complete recovery. But first a clear idea of the appendix and its relative position is absolutely essential.

Porter says: "The appendix vermiformis arises from the attached left postero-lateral margin of the cæcum, near to or at a point where the caput coli is joined to the posterior abdominal wall, and is uncovered by peritoneum."

The following observations were made by Ferguson during the past eight years, and cover a total of two hundred dissections carefully performed for the purpose of elucidating certain points regarding this small and apparently unimportant bit of the human body:

The average length of the two hundred appendices was four and one-half inches, and the average diameter that of a No. 9 catheter, English scale. In three cases the appendices

were only half an inch in length, while in only one case could it be said that it was entirely absent.

Of the entire two hundred examples, in 123 the appendix was supplied with a mesentery of its own, and so placed that its perforation would open directly into the peritoneal cavity. Of these 123, the appendix lay to the right of the cæcum in nineteen, descended downward in eleven, lay inward from the cæcum in eigteen, and behind the cæcum in the remaining seventy-five.

The other group of seventy-seven cases was especially interesting in the fact that the appendix was so placed and covered by peritoneum that its perforation would open into the sub-peritoneal tissue and establish a diffuse form of cellulitis. In these cases the most likely course for the pus to pursue would be downward, and finally to present itself in the situation of a psoas abscess.

Up to within a recent period of time it was the prevalent belief that peri-typhlitic suppuration was located retro-peritoneally, and most generally in the iliac fossa, whence it found its way to the surface by pushing aside the peritoneal reflection corresponding to Poupart's ligament. It cannot be denied that the development of most circumappendicular abscesses seems to confirm this view, and that the rules laid down by Parker for the treatment of this group of suppurative processes have yielded, and continue to yield, very satisfactory results in very many instances. We owe the better understanding of the elements of this phenomenon to Treves and Weir, but principally to McBurney, who demonstrated that in the vast majority of instances the formation of abscesses in the right iliac fossa was due to intra-peritoneal inflammatory processes, mostly of the vermiform appendix. Though not always, this form of abscess is mostly established within the peritoneal sac.

Of the causes of appendicular inflammation, we have first, the impaction of foreign bodies entering from the gut,

acute or chronic forms of catarrhal or ulcerative enteritis transmitted from the colon and leading to simple hypertrophy or to ulceration, both of these causing irregular constriction, mostly in the vicinity of the attachment of the appendix. Another not infrequent cause of stenosis (according to Murray) is the doubling upon itself and fixation of the appendix in this position. With the establishment of hypertrophy and stenosis a loss of contractile power is associated, leading to more or less complete retention and to the inspissation of fecal matter, which finally assumes the shape of one or more globular concrements. As long as the communication with the cæcum is fairly open no local symptoms develop. As soon as the stenosis becomes considerable or complete the well-known signs of appendicitis make their appearance. If they are due to a passing state of catarrhal hyperæmia their acuteness will vary in proportion to the intensity of the stenosis. Thus, with the cessation of causal intumescence and the elimination of the stenosis maintained by it, all trouble may really disappear. Where ulcerative processes have led to the formation of a permanent cicatricial contraction the appendical trouble is apt to persist, even after the cessation of the causal disorder of the intestines. Passing states of local intumescence are then more likely to lead to complete occlusion of the communication between the gut and appendix, with serious consequences. But even in these cases temporary improvements are possible with the diminution of the acute swelling of the cicatricial mass. If this does not occur the intumescence or foreign body will gradually compress the vessels and nerves of the vermiform appendix, and give rise to venous engorgement of that part of the organ beyond the obstruction. The distal end naturally tends to become gangrenous, but, owing to the fact that the appendix is generally within the limits of a mesentery, complete mortification is not at once established, because the swelling, œdema and serous exudation caused by the appen-

dicitis spread apart the two layers of the mesenteric attachment of the appendix vermiformis. This opens the lymph spaces and helps to relieve the pressure upon the venous return, which in turn has a tendency to relieve or decrease the distal engorgement of the organ, and thus materially retard the onward progress of the gangrenous process. The low grade of vitality of the adipose tissue, together with the arrangement of the veins and lymphatics, favors the spread of the inflammatory process backward between the mesenteric layers of the appendix until the loose areolar tissue behind the caput coli is reached and a perityphlitic inflammation or suppuration developed. If the dead mass is going to be separated from the living stump, it must be accomplished by the development of an ulcerative process. This always occurs at the point of junction between the living and dead tissue, where nature is sufficiently strong to throw out a fibro-plastic exudation and support the reparative granulation process associated with the ulceration. The escape of the foreign body, in either case partially relieves the distal engorgement of the appendix, and it tends to return to the normal condition, which helps to retard the extension of the inflammatory action into the general peritoneal cavity. In cases where the swelling is very rapid mortification ensues at once, and an ulcerative process is quickly established; but instead of opening into the post-peritoneal tissue the opening is directly into the peritoneal cavity. Shock and death rapidly follow, and all that is found at the autopsy is a sphacelus of the distal portion of the appendix, a perforating ulcer at the junction of what was the living and the dead mass, with little or no localized or general peritonitis.

A CONTRIBUTION TO THE STUDY OF SOME OF THE DISEASES PECULIAR TO THE RIGHT ILIAC FOSSA.

BY R. HARVEY REED, M.D., MANSFIELD.

In the paper we presented before this association last year we confined our study of the diseases peculiar to the right iliac fossa to that of chronic catarrhal appendicitis, and endeavored to show you by practical experience the importance of removing the appendix vermiformis as a safeguard to the patient's health and life from the dangers that are liable to rise from a chronic catarrhal condition of this useless appendage. In addition, however, to chronic catarrhal appendicitis, this appendage may be the seat of a variety of other difficulties, which are equally as dangerous, if not more so, than the chronic inflammation of this rudimentary attachment.

Single or double oöphorectomy has long been considered an established and justifiable operation by gynecologists the world over. Also the removal of the appendages for chronic catarrhal inflammation of the Fallopian tubes, or for hydrosalpinx, pyosalpinx or any of the other maladies, which may so interfere with the functions of these organs as to disturb the general economy and resist the ordinary line of medication.

Those surgeons who have had experience in the surgical treatment of the diseases of the ovaries and their appendages, are living witnesses of the beneficial results which have been derived from the surgical assistance afforded by operations

for their relief; and, notwithstanding this operation may deprive a woman of the ability to carry out the prime object for which she was created, yet few surgeons hesitate to remove these organs for her relief when the indications are such as to appear to justify it.

On the other hand, man, and even his helpmate, woman, have been subjected for lo! these many years to a *variety* of diseases of the appendix vermiformis, which, under many circumstances, are fully as dangerous and equally as painful as the diseases peculiar to the appendages of woman only; and, notwithstanding the removal of this useless extension of the cæcum places no embargo on the procreative power of either man or woman, yet it has been allowed to go on without surgical interference for ages, notwithstanding it has been the unquestionable means of causing the death of thousands and tens of thousands of patients.

Strange to say, however, that in the face of these facts we have surgeons, but more particularly physicians, in almost every part of our country to-day who object to surgical interference in diseases of the appendix veriformis, and at the same time will advocate the removal of the ovaries and their appendages, and thus desex woman for diseases which are no more painful, and even less dangerous, than those which are liable to attack their next-door neighbor, the appendix vermiformis.

To my mind, nothing can be more paradoxical than for a surgeon or a physician to advocate the removal of the ovaries and their appendages under almost every conceivable circumstance for the relief of the many different forms of disease which may affect them, and at the same time object to the removal of the appendix vermiformis (a harmful, useless rudiment) for the relief of diseases which are equally dangerous, correspondingly painful, and comparatively as frequent.

It has always seemed strange to me that physicians and surgeons would, in the language of the commercial traveler,

allow themselves to make "a run" on certain diseases, or rather diseases peculiar to certain organs, to the practical exclusion of all others, which are equally important if not fully as dangerous.

The liver has long since been the "scapegoat" for a multitude of diseases; likewise malaria has made it easy for the physician to diagnosticate a conglomeration of symptoms for which he is unable to solve and render a rational solution, or trace to any one particular cause. At the same time "idiopathic peritonitis" has taken its seat in the amen corner with "malaria," "liver complaint" and "female weakness."

We can truthfully say that volumes have been written on these subjects. In fact, for years the medical student would have been justified in arriving at the conclusion, from his study of the various text-books, that certain organs of suffering humanity were the principal seats of all diseases, to the practical exclusion of all others.

It took a Senn to demonstrate that the pancreas was not only liable to cystic degeneration, but was susceptible of successful surgical treatment; whilst it was left for a McBurney to direct the attention of the profession to certain diseases of the vermiform appendix, which were not only, like the diseases of the pancreas, dangerous, but susceptible of successful surgical interference.

In the language of an old adage, that "it is hard to learn an old dog new tricks," we realize the difficulty of diverting certain members of the profession in every community from the time-worn ruts they have long since traveled in, and induce them to strike out in a new and to them untrodden path, especially when it is so easy for them to jog along in the old time-worn rut and depend on opium, the customs of the past, and the grave-yard, to bury their ignorance and justify their adopted line of treatment.

We take it for granted that there is not an educated physi-

cian or surgeon at this day and age who will admit, or who can conscientiously believe in the old idiopathic theory of the origin of any disease. But, on the contrary, that every disease is due to some cause, and whenever we attempt to make ourselves believe that this cause is of an idiopathic character, it is only admitting that we have not been able to discover the *real* cause of certain effects, and are simply trying to smooth off our ignorance and soothe our conscience, and console the patient by assuming that this difficulty has been of an iodiopathic nature

This being the case, we are in a position to assume that every case of not only typhlitis, peri-typhlitis or appendicitis is the result of a cause, but in addition to this we are satisfied that many cases of so-called idiopathic peritonitis have been the result of one or more of the diseases above mentioned, which are peculiar to the right iliac fossa.

ETIOLOGY.

In the study of the causes that produce many of the diseases peculiar to the right iliac fossa, we may enumerate the following:

1. *Traumatic influences.*
   (*a*) Direct injury, extra-peritoneal.
   (*b*) Direct injury, intra-peritoneal.
2. *Foreign bodies.*
   (*a*) From without.
   (*b*) Formed within.
3. *The result of disease.*
   (*a*) Congestion.
   (*b*) Inflammation, acute or chronic.
   (*c*) Suppuration.
   (*d*) Tuberculosis.

Traumatic Influences.—That traumatic influences are frequently the cause of grave injuries of the viscera, peculiar to the right iliac fossa, is beyond any question. A direct blow over the right inguinal region may produce a rupture of

the head of the cæcum, or even of the vermiform appendix, without breaking the skin or producing a solution of the continuity of the abdominal parietes, as I have seen in several instances, a good illustration of which will be found in Case No. I.

Again, I have seen cases where direct force applied externally over the right inguinal region was sufficient to produce enough contusion, without rupture of the intestinal walls, and no visible external appearance to indicate it, to set up an inflammation of the head of the cæcum, or the appendix vermiformis, which is followed with a "sick spell" lasting anywhere from one to eight weeks, or longer, followed by apparent recovery; yet most of these cases are sooner or later annoyed by recurrent attacks referred to this region.

In this class of cases, whilst the inflammatory symptoms may not be very severe, and the patient's life not particularly threatened, yet at the same time I have seen the most aggravated conditions grow out of a very slight injury of this character, resulting from the adhesions produced by the inflammation, which had glued the vermiform appendix (which in some instances is double the normal length) to the mesenteric side of the cæcum, thus obstructing the circulation to such an extent as to produce the most marked varicosed condition of the veins supplying the cæcum and ascending colon, which is illustrated by Case No. II.

Under the head of traumatic influences effecting the right iliac fossa, resulting from intra-peritoneal injuries, may be mentioned those produced usually by lifting or jumping. For instance, I have seen cases in which a hernia involving the appendix vermiformis was produced by lifting, which necessitated operative interference for its relief and the preservation of the life of the patient. Again, I have seen cases in which acute congestion and rupture of some of the capillary vessels supplying the vermiform appendix, were followed by

the most aggravated symptoms, and was only relieved by operative interference, which is demonstrated by Case No. III, whilst Case No. IV demonstrates the result of non-operative interference.

Foreign Bodies.—Perhaps the most common cause in producing diseases of the right iliac fossa, and especially those involving the vermiform appendix, are *foreign bodies.* These may be received from without, such as cherry pits, grape seeds and the like, which are swallowed and eventually find their way into the vermiform appendix, and set up ulcerative inflammation, which in the course of time results in a perforation, and either general suppurative peritonitis or a circumscribed abscess, which is not always confined to the right iliac fossa, but may extend to the rectum, or may ascend as high as the liver and involve a portion of that, as has been shown by Dr. Weir, of the New York Hospital. I consider these abscesses of the most dangerous character, as they are liable to attack and destroy, by sloughing and gangrene, any portion of the ascending colon, as is demonstrated by Case No. V, or even involve the omentum to such an extent as to produce gangrene of a large portion of this natural protector of the abdominal viscera, as is clearly shown by Case No. VI.

I dare say that few operators will disagree with me when I say it is the exception, rather than the rule, to find the diseased vermiform appendix free from one or more fecal enteroliths, which, in many instances, are very hard, and at any time are liable to produce perforation by ulceration, and threaten the patient's life; which I have seen occur time and again.

At all events, these fecal concretions are, I firmly believe, formed within the vermiform appendix, and are nearly always associated with chronic catarrhal appendicitis. Yet, it is a question whether *they* are the cause of, or this chronic catarrhal condition favors *their* formation. But whilst it is

interesting scientifically for us to determine which of the causes come first, and which is the exciting cause of this chronic condition, and which is not, yet practically it is of little consequence when you are called to the bedside of a patient whose life is threatened by one of these abominable fecal enteroliths, whether it has been caused by a catarrhal condition of the appendix, or the catarrh has been caused by it.

The Result of Disease.—That many of the affections peculiar to the right iliac fossa, are *the result of disease*, and not in any way associated with traumatic origin, is certainly beyond any question.

Congestion, the result of "catching cold," is a frequent cause for getting up inflammatory troubles involving the vermiform appendix, or even the head of the cæcum, and every time an acute inflammation of the vermiform appendix occurs, the patient is liable to become a sufferer from chronic catarrhal appendicitis, which we know by experience is usually followed by recurrent attacks of an acute character, which, as a rule, become more and more severe, until the patient is relieved of his malady by death or surgical interference. In fact, every time a patient has an attack of acute appendicitis, he is not only in danger of having it followed by a chronic catarrhal condition of this rudiment, but he is in imminent danger of having it followed by suppuration, which experience has led me to consider and fear as a most grave and dangerous condition—a condition from which the patient seldom makes permanent recovery, or if he does, it leaves him suffering from some sequel, the result of destructive changes of the viscera of that particular part of the abdominal cavity, the consequence of this suppuration.

My attention has recently been called to a case of tuberculosis of the vermiform appendix, which of couse is perhaps just as liable to be attacked by this dreaded disease as any other portion of the abdominal viscera; but the peculiar symp-

toms and history of this case are of such a character as to not only be misleading, but to be convincing to my mind that the tubercular trouble had its origin in the mesenteric portion of the vermiform appendix, which I think is clearly demonstrated by Case No VII.

DIAGNOSIS.

In the free discussion which followed my paper on "The Surgical Treatment of Chronic Catarrhal Appendicitis," at the last meeting of this society, notice that the great "bugbear" which seemed to scare some of our members with reference to operative interference last year, was the difficulty of diagnosticating the exact nature and extent of the pathological changes which had taken, or were taking place. Whilst we admit the diagnosis of the exact condition of the vermiform appendix is about as difficult and complex as it is to make a *positive* diagnosis as to the *exact* pathological condition which may effect the uterine appendages, yet how many gynecologists are there nowadays who will object to an operation simply because they can not diagnosticate beforehand whether the ovaries contain a number of cysts, or but one cyst, or whether the Fallopian tube is distended with water, blood, or pus? In fact, where is the gynecologist with an extraordinary amount of practical experience, who will dare to venture a positive and explicit diagnosis as to the particular pathological condition of the uterine appendages which he proposes to remove? He will tell you very quickly that it is enough to know that the disease is incurable without an operation, and severe enough to warrant relief by an operation, and that after the operation it will be much easier for him to explain the exact pathological condition that existed, than prior to an operation, with much less danger of being mistaken. In brief, all that he desires to determine from a practical standpoint is that the uterine appendages are diseased, and that the disease is of such a character as will not get well under ordinary circumstances

without surgical interference, and with this amount of knowledge, nine-tenths of the gynecologists in this country will, without any hesitancy advise an operation.

Now let us, with the light thrown on the question of diagnosis by the practical gynecologists, proceed to determine the essential points necessary to warrant operative interference on the vermiform appendix.

It is usually a very easy matter to determine the possibility of the presence of disease of the right inguinal region, not only by the locality, but by the tenderness of the parts on pressure, together with the pain in this region of the abdominal cavity. Especially is this so in the male. In the female, however, it is necessary to differentiate between a pathological condition of the right ovary and that of the appendix, or the cæcum. This, however, is usually very easily done by a bimanual examination, in which one hand is used to make pressure over the right inguinal region, while the index finger of the other is placed well up in the right horn of the vagina, by which manipulation it is very easy to follow out along the broad ligament and the tube until you come to the ovary, and then determine whether the tenderness is in the Fallopian tube, the ovary, or higher up in the region of the vermiform appendix. After practically determining that the difficulty is confined to the head of the cæcum or its appendix, it is usually a very easy matter to learn from the history whether the difficulty is the result of direct extra-peritoneal injury or not. It is usually an easy matter to obtain from the patient the fact whether he or she has been struck or kicked over this region, or whether he has, as I have seen, bruised himself by pushing some heavy article, by placing it against his abdomen.

Intra-peritoneal injuries are not quite so easily determined, although they are generally connected with the history of a heavy lift or strain, which is immediately, or in a few hours

after, followed by pain in the right inguinal region, frequently extending up toward the umbilicus, which the patient usually refers to as "colic." This may be followed by vomiting and constipation, or we may have constipation and diarrhœa alternating, whilst the tenderness increases and a circumscribed tumor can usually be detected on palpation; and in addition to this, the circumscribed dullness which usually occurs from the localized œdema is sufficient to warrant the opinion that the difficulty is the result of some intra-peritoneal injury of this particular region.

In cases where there is no history of either extra- or intra-peritoneal injury, it is of no practical importance whether the morbid changes which are going on in the right iliac fossa are the result of foreign bodies, such as cherry pits, grape seeds and the like received from without, or whether it is the result of enteroliths formed within the vermiform appendix. I say there is practically no necessity of determining which of these conditions is the cause of the difficulty, because the results of either are practically the same; and at the same time there is no method known at the present time by which a differential diagnosis can be made in reference to these particular conditions.

In pathological conditions of the right iliac fossa resulting from disease, it is usually very easy to trace a congestion to a severe cold. The patient may have been exposed in some manner, resulting in a chill, followed with congestion, which may soon localize itself in the right iliac region, followed with pain, tenderness, and often circumscribed swelling in that region. In these cases it is not unusual to have it ushered in with vomiting and followed with severe constipation, which may finally give way to acute diarrhœa, followed with resolution. More frequently, however, this class of cases is apt to be followed with a chronic catarrhal condition of the vermiform appendix, in which recurrent attacks of acute inflammation are liable to occur. They

usually become so severe in a few months or years as to make life a burden and a disgust, rather than a comfort and a pleasure.

Again, acute congestion followed with inflammation, or even chronic catarrhal appendicitis in any of its recurrent attacks of acute inflammation, may be followed with suppuration, which is, as a rule, easily diagnosticated, first by localized tenderness and swelling, by the peculiar red tongue by fluctuation and rigors, which sooner or later manifest themselves under these circumstances, and especially by the general collapse, which is always manifest where there is suppuration the result of perforation. Whilst we may have tenderness over the entire abdomen, it will be found there are not usually present symptoms of general peritonitis, and that the focus of tenderness is in the region of the right iliac fossa, and that as you recede from the so-called McBurney point the tenderness is less marked, the dullness dissolves into resonance, fluctuation is lost, and, last but not least, the circumscribed tumor, usually consisting of the abscess walls, can be distinctly outlined in the right iliac region on careful examination.

It is much easier, and also much less important, to diagnosticate between suppurative appendicitis the result of traumatic influences, or suppurative inflammation the result of acute congestion, or chronic catarrhal appendicitis, than it is to distinguish between suppuration from these same causes and circumscribed effusion resulting from tuberculosis of the appendix vermiformis, especially so when there is no family history of tuberculosis traceable in the patient.

It is not necessary for us to argue the question, which has already been settled by different investigators, that tuberculosis is liable to occur in any person, whether they have a family history of hereditary tuberculosis or not. In other words, tuberculosis is believed to be a disease which is susceptible of transmission from one person to another, and also

that it may attack almost any portion of the human economy. When this dreaded disease attacks the vermiform appendix, and makes this its initiatory *locus minoris resistentiæ*, then we may expect to have set up an inflammatory condition with effusion. We are also liable to have (as is demonstrated by Case VII) the vermiform appendix encysted, and when this condition of things occurs it is quite difficult to diagnosticate between a cyst containing peritoneal effusion due to tubercular irritation, and a cyst, including the appendix, containing pus or non-tubercular effusion.

It is exceedingly important to determine, if possible, whether the origin of the appendicular trouble is the result of tubercular inflammation or whether it is the result of some other exciting cause, and especially so if the case has been one of long standing, for unless the tubercular focus is removed early there is little or no use of attempting its removal with any hope of permanent recovery, for the reason that the disease will soon extend along the mesentery to other portions of the intestinal tract, the omentum, or even the liver.

To my mind there is no known method, in the absence of the knowledge of existing tuberculosis, by which we can determine between a cyst containing tubercular effusion and a cyst containing pus or non-tubercular effusion, excepting by aspiration, and this I would consider much more dangerous to the patient, for various reasons, than to make an exploratory incision and determine the true nature of the difficulty. Usually, however, it is possible to elicit a history of tuberculosis, or the symptoms of the patient may be of such a character as to lead to its detection; yet even the enlargement of the glands due to tubercular influences cannot always be relied upon as a diagnostic symptom of this disease, for the reason that enlargement of the glands may result from absorption of pus from an abscess in the right iliac region, as well as from an abscess in any other part of the human economy.

PROGNOSIS.

Experience, which has always been considered a good teacher, and as such has led us to be guarded in our prognosis of the diseases peculiar to the right iliac fossa, has taught me that whilst we may have a perforation of the vermiform appendix followed with an abscess, which may open externally and finally result in resolution, with or without fecal fistula, yet we often have what may start as a mere congestion of the vermiform appendix, followed with inflammation, and later chronic catarrhal appendicitis followed by perforative ulceration from a fecal enterolith, resulting in death.

Experience has also taught me to look upon these troubles as always being of a dangerous and treacherous character, and like a volcano, which may rest for years in a passive and harmless condition, may burst forth at any time with a disastrous eruption, causing death and destruction to everything before it. So with the diseased vermiform appendix, in regard to which we feel like endorsing the language of the Indian who was asked what he thought of a gun, when he said "it was dangerous without lock, stock or barrel." So it is with the writer, who looks upon the diseased vermiform appendix as always being of a dangerous character, and like the old adage that "only a good Indian is a dead Indian," so it is with the vermiform appendix, the only safe vermiform appendix is the amputated one. By this we mean to say that we look upon the diseased vermiform appendix as being dangerous at all times, and liable to assume a fatal condition at any time, and therefore our prognosis should always be of the most guarded character.

TREATMENT.

The experience of the past year has not changed the writer's opinion as to the proper and safe treatment of the diseased vermiform appendix, and, like money in the commercial world, which is said to be "the root of all evil," so

the vermiform appendix may be looked upon as the "tap-root" of all evils occuring in the right iliac fossa, with the possible exception of the ovary in woman; and, unless further light is thrown upon this subject to convince me that I am wrong in my conclusions as to the proper method of treatment, I will reiterate in substance what I said in my paper last year, that the only safe and reliable method of treating the diseased vermiform appendix, and the only one that will enable you to render anything like a favorable prognosis, is the amputation of this useless, dangerous and treacherous rudiment—the inheritance we have received from our ancient ancestors.

CASE I.

Wm. M——, of Crestline, Ohio, a vigorous, healthy, muscular man, aged thirty-seven, was ripping lath on June 29, 1891, and about 3 p.m. was struck by the end of a lath thrown by a buzz-saw, with great violence, over the right iliac region, producing a slight abrasion of the skin, considerable bruising of the muscle, followed with ecchymosis, and without a rupture of either the integument or the abdominal walls.

The man walked home from the shop where he was working, a distance of several blocks, and called a local physician by the name of Clutter, who gave the man but little attention and went off and left him in the hands of a tyro. The man continued to get worse until Drs. Kelley and son, of Galion, were called in counsel by the friends; they in turn sent for the writer, who found the man suffering from circumscribed peritonitis, with severe pain over the right iliac region; countenance pinched and anxious; pulse rapid and temperature above normal, indicating every evidence of a rupture of the intestines, with fecal extravasation, resulting in circumscribed peritonitis. In harmony with the opinion already advanced by Drs. Kelley and son, we advised an operation at the earliest possible moment as giving the best chance for his

recovery, notwithstanding the opposition to the same by the attending physician, Dr. Clutter.

A laparotomy was performed by the writer, assisted by Drs. Kelley and son, in the presence of Dr. Clutter and others, in which we found a rupture of the colon just above the head of the cæcum, which was an inch and an eighth in length, and from which large quantities of fecal matter had escaped into the abdominal cavity, setting up a most violent circumscribed peritonitis, which by this time had formed large quantities of lymph, which was rapidly breaking down into pus.

The abdominal cavity was thoroughly washed out with a 1 to 5,000 bichloride solution, the opening in the bowel closed with a Czerna-Lembert suture, a drainage-tube introduced and the external wound closed. Notwithstanding the enormous destruction to the intestinal and parietal peritoneum which resulted from the fecal extravasation, followed with the most violent suppurative peritonitis, the man lived seventy-two hours after the operation, when death took place suddenly, probably the result of rupture of the intestine, due to sloughing and gangrene.

Remarks.—It is our candid opinion that had this man been operated upon in time, as he should have been, a valuable life could have been saved with but little or no trouble; but, owing to the dilatory methods adopted by his attending physician, who delayed and opposed the operation until his opinion was overruled by the friends of the patient, at which time (four days after the injury) the destruction occasioned by the injury had become so great as to make the prognosis without an operation absolutely unfavorable, and even *with* an operation (which, in our judgment, gave the only chance of recovery) very uncertain.

CASE II.

Mr. Alpheus S——, age about forty, of Marion, O., a farmer by occupation, was seen by the author for the first

time on March 10, 1892, in counsel with Dr. Rhu, who gave the history of his patient having been struck by a wheel in the right inguinal region some six months previous, and from that injury he dates his difficulty in the right inguinal region, which gradually grew worse and worse until he was confined to his bed and recovery was threatened, when an operation, which had been advised by Dr. Rhu, was consented to by his friends, and on March 13 he was operated upon by the writer, assisted by Drs. Rhu, Martin and Thomas, of Marion, and Dr. F. H. Harding, of Mansfield.

On opening the abdominal cavity the veins of the cæcum were found in a remarkably varicosed condition, whilst the vermiform appendix, which was five inches in length, was found tightly adhered to the mesenteric side of the cæcum and ascending colon, thus inturruping the circulation and producing this remarkable varicosed condition of the veins thus involved. The appendix was carefully dissected out of its abnormal position, which necessitated the tying of several small arties, after which it was ligated close to the head of the cæcum and removed. The stump of the appendix was covered with omentum and the abdominal wound closed.

The patient made a rapid recovery without any bad symptoms, whilst the pain was relieved almost immediately after the operation, and he is to-day in the enjoyment of his ordinary health.

Remarks.—Here is another case showing the result of traumatism, in which the circulation was so obstructed as to sooner or later set up such destructive inflammation as to have endangered recovery but by an operation, which was not only advised by the attending physician and his counsel, but by the operator, and the proof of the wisdom of this advice needs no comments beyond the report of the facts of this case.

CASE III.

Fred B——, aged twenty-five, of Shelby, O., whilst

lifting a heavy weight on July 4, 1891, felt something "give way" in the right iliac region, which induced such severe pain as to make him "double up" for a few moments, which was followed soon after by diarrhœa. The same evening, however, he rode to Shelby, a distance of some two miles, and while there was taken with severe "cramps" and returned home as soon as possible. These "cramps" were followed with diarrhœa, which lasted all night, and the next morning, July 5, he again rode to Shelby and consulted his family physician, Dr. A. F. Hyde (to whom I am indebted for the report of this case), who found his pulse and temperature slightly elevated, abdominal muscles rigid, with extreme tenderness, as the Doctor puts it, "in the southwest corner of his abdomen," meaning the right iliac fossa.

Dr. Hyde promptly advised him of the serious aspect of his symptoms, and put him on small doses of calomel and opium. But notwithstanding, he rapidly grew worse, and July 6 tumefaction began to occur in the right iliac fossa, which in a day or two was followed by more favorable symptoms, which only lasted a short time, when his symptoms became aggravated, his pulse weak and rapid, his temperature ranging from 101 to 103.5°; countenance anxious and facial expression pinched, with marked aggravation of all the symptoms in his case.

On July 13, the writer was called in counsel with Drs. A. F. Hyde and M. T. Love, who had already advised operative interference. I made a laparotomy, and found the head of the cæcum inflamed, with a short, contracted vermiform appendix, which was removed in the ordinary manner, a drainage-tube was inserted, and the external wound closed by three rows of sutures: the first, a fine, continuous suture of catgut, closing up the peritoneum; second, a continuous suture of heavier catgut for the muscular walls, and third, closing the integument with deep, interrupted silk sutures,

which dipped down into and included the second row of catgut sutures.

The patient made a rapid and uninterrupted recovery, and in a few weeks was out attending to his ordinary avocations on the farm.

Remarks.—This case is simply another example of the importance of operative interference in traumatic injuries, which set up and maintain a continuous or even recurring disturbance of the abdominal viscera in the right iliac region.

CASE IV.

I am indebted for the report of the following interesting and instructive case to my friend Dr. Auguste Rhu, of Marion, Ohio.

Orley H——, aged fifteen years, sustained a slight injury of the right inguinal region while riding a bicycle. A week later he complained of cholera-morbus and pain in the abdomen, from which he made a partial recovery, but on August 6, 1891, he had another attack, for which he was treated for peritonitis by his father, who was a physician. The father had called to his assistance several other local physicians.

Dr. Rhu was called in on the fourth day of this last attack, diagnosed the case as one of suppurative appendicitis by the McBurney method, and advised immediate surgical interference, which was refused. The result was that a post-mortem was held August 11, 1891, which revealed a large collection of pus, surrounding a perforated appendix; this contained a fecal enterolith, in addition to another fecal concretion, which had escaped and was found in the abdominal cavity.

Remarks.—In this case we have a marked contrast with Case No. III, of the results of non-operative interference as compared with operative interference, for traumatic injuries of the right iliac fossa, and except to call your attention to

this one particular point, we do not deem further comments necessary, as the case and its results speak for themselves.

CASE V.

Mrs. Maud S——, of Marion, O., a prominent young married lady of that city, was taken ill about July 2, which illness was marked by pain and tenderness in the right iliac fossa, and increased in severity until it was evident to Dr. Rhu, the attending physician, (to whom I am indebted for assisting me in obtaining a report of this case) that suppurative appendicitis resulting in a circumscribed abscess had occurred, notwithstanding he was unable to trace her illness to any particular cause. Whilst the Doctor was unable to determine satisfactorily the etiology of this case, subsequent investigations of the case showed a perforation of the vermiform appendix, which was undoubtedly due to ulceration caused by a foreign body, which, in all probability, was a fecal enterolith which had escaped and formed an abscess, and subsequently became dissolved in the pus, and thereby escaped detection.

Dr. Webb J. Kelley, of Galion, was called in counsel and concurred in the opinion of Dr. Rhu, that operative interference was the only possible chance for her recovery; and in harmony with this opinion the writer was sent for on July 24, 1891, at which time he found all evidence of a circumscribed abscess in the right iliac region, which undoubtedly involved the vermiform appendix and the head of the cæcum; he advised immediate operation, as the last and only possible chance for her recovery.

Owing to a sudden collapse, which occurred about three o'clock the night previous to the operation, it is the opinion of the writer that perforation of the ascending colon took place at that time, and it was with great difficulty that the attending physicians were enabled to secure reaction from the shock she sustained at this time. The patient having to a certain extent rallied from the shock at the time the writer

saw her, it was decided by Drs. Rhu, Kelley and himself that nothing short of an operation could possibly save her life, and there was no guaranty of that doing so, owing to the delay and extensive destruction that had undoubtedly taken place.

This, however, being explained to the family, an operation was decided upon, and a laparotomy made by the usual oblique incision parallel to Poupart's ligament, which revealed that gangrene had taken place, and, owing to that, a perforation had occurred in the ascending colon about three inches above the head of the cæcum, with large quantities of fecal extravasation, which was mingled with the most offensive character of pus, of which fully a quart and a half was evacuated. The circumscribed abscess-cavity, which involved the head of the cæcum and extended well down in the iliac fossa, was thoroughly washed out with a 1:5000 bichloride solution.

Owing to the marked pathological changes, with adhesions and thickening of the parts, we were unable to find the vermiform appendix, and going on the advice of other operators, that when such was not readily found, owing to the adhesions, it was best not to break up these adhesions and remove it, we allowed it to remain. After closing the opening in the bowel by a Czerna-Lembert suture, a large drainage-tube was placed in the abdominal wound, which was closed in the usual manner.

The patient rallied from the operation, and for a few days promised fair prospects of recovery, but unfavorable symptoms returned, and the patient died on the sixth day after the operation. A post-mortem showed an abscess under the ascending colon, where the perforated appendix had been attached, and owing to the perforation, was keeping up the original cause of the whole trouble.

Remarks.—This case contains several interesting lessons: In the first place, it was mistaken by some of the local

physicians for a case of typhoid fever. I presume this was owing to the fact that we sometimes get tenderness in the region of the right iliac fossa in typhoid fever, due to irritation of the so-called "Peyer's patches." In the second place, owing to this division of opinion, the case was delayed until operative interference gave but little chance for permanent recovery. In the third place, when operative interference was made the perforated vermiform appendix, which could not readily be found, owing to the thickening and adhesions already mentioned, was allowed to remain, in harmony with the advice of other writers and operators, whose opinion and experience we, at that time, considered worthy of imitation; but this case has clearly, and distinctly, shown the fallacy of making an operation of this character without finding and removing the offending vermiform appendix and evacuating every particle of pus and foreign material which may infest any part of the abdominal cavity.

CASE VI.

John H——, of Shelby, O., aged forty-four, a laborer, of spare build and ruddy complexion, had the history of having had a scrotal hernia on the right side, which disappeared with the use of a truss, when at the age of about twelve years.

For several years prior to his death he suffered from occasional attacks of abdominal pain localized in the right iliac fossa, followed by a more or less persistent diarrhœa. He complained of tenderness and soreness in the region of the appendix vermiformis, which pain was always aggravated by hard labor, especially by efforts at lifting heavy weights (which he was accustomed to do, owing to the fact that he was a marble cutter), but which *he* thought arose "from weakness," due to the rupture. On February 19, 1892, he was attacked with severe abdominal pain, nausea and vomiting, accompanied with constipation.

Dr. A. F. Hyde, to whom I am indebted for assisting me

in obtaining this report, saw him for the first time on the evening of February 20, for up to this time he was under the treatment of Dr. Ryal, a homœopath of that village. His pulse was found to be 90, and temperature 99° F., while severe tenderness was observed on palpation over the right iliac region.

Dr. Hyde at once gave it as his opinion that the man was suffering from an attack of appendicitis, with the possibility of suppuration, but did not see him again until the evening of the 22nd, the fourth day after the onset of his last attack. At this time his pulse was 120, temperature 98° F., with considerable tympanitis. Hiccoughing had set in twenty-four hours previous to this, as the natural result of septic infection, and gave the patient a great deal of pain and annoyance. Marked dullness was observed over the right iliac fossa, in which was diagnosticated an abscess, and immediate operation was advised as a last resort. In harmony with this opinion the writer was sent for and saw him a few hours later, and confirmed the opinion of Dr. Hyde, and proceeded at once with the operation, in which he was assisted by Drs. Hyde and Love, of Shelby, in the presence of Drs. Bricker, Ryal, Sawyer, Sager and others.

I made the usual lateral incision, and found an enormous abscess filled with the most fetid and offensive pus, in which was obtained an enormously enlarged vermiform appendix containing a perforation from which a grape seed had escaped into the abdominal cavity, which we fortunately captured. It also contained a large fecal enterolith which had formed above the grape seed; and from all appearances, as the history of the case indicated, had been a long time in forming, it undoubtedly had imprisoned the grape seed all this time, which had finally perforated the appendix lower down, and subsequently made its escape into the abdominal cavity.

In addition to this, we found that a quantity of the omentum had become necrotic, and consequently quite a quantity

of it had to be removed, and will be seen accompanying the specimen.

The ordinary toilet was made, a drainage-tube inserted, and the incision closed by the method already described. It is scarcely needless to add that this patient died in a day or two after the operation.

Remarks.—This constitutes another grave-yard witness of the danger of foreign bodies in the vermiform appendix, and the destruction occasioned by circumscribed suppuration, due to their perforation and escape into the right iliac fossa. From the history of this case we have every reason to believe that this grape seed had been lodged in the vermiform appendix for several years, and had, no doubt, set up a chronic catarrhal appendicitis, which was still more aggravated by the formation of a large and unyielding fecal concretion.

There is no question in the writer's mind that had this case been operated prior to this last attack, the life of this patient might have been saved; but owing to the enormous destruction, resulting from long-continued delays in operative interference, the vitality of the patient was so exhausted and the destruction of the abdominal viscera so extensive, that nothing short of death was left to follow (whether he was operated or not) as his only relief. Although it is our firm opinion that an operation even under these circumstances gave the *only* chance left him for recovery.

CASE VII.

Frank H. T——, aged forty-three, a farmer by occupation, living six miles north of Mansfield. I was called to see him for the first time March 29, 1892, and found him with an excellent family history, in which in no direction could be traced the slightest taint of hereditary tuberculosis. The fall previous he was taken with a dry, hacking cough, which was soon followed with a pain in the right iliac fossa, which he attributed to a strain from coughing. This cough, however, only lasted a few weeks, when it entirely dis-

appeared, but the pain in the right iliac fossa continued, and extended up to the region of the liver. A short time later he was taken down with an acute attack of pain, which was referred to the same region, and for which he was treated by a homœopath, who never made a diagnosis of his disease, but very frankly told him he did not know what ailed him. He quit all treatment for a while and gradually got somewhat better, so much so that he could be up and around, but the pain still continued, and by and by it became so severe that he consulted another homœopath, who treated him for a while with no better success than his predecessor. He finally went to a notorious quack in the city who claimed a "dead-sure thing" on him; but instead of being cured he gradually grew worse, and on the date above mentioned the writer was called to see him.

A careful examination revealed an exceedingly red tongue, pulse ranging from 85 to 95, with temperature but little above normal; appetite poor, bowels alternating with diarrhœa and constipation, stomach irritable, but vomiting the exception, although occasionally occurring. Marked circumscribed tenderness was found over the head of the cæcum and vermiform appendix. The tenderness, however, extended as high as the liver, but gradually faded out as we radiated to other parts of the abdominal cavity, although there was more or less tenderness over a great portion of the abdomen.

A careful examination of the lungs revealed nothing abnormal, either by auscultation or percussion; but all his pain was principally referred to the right side, and more particularly the right iliac region. With this history and these symptoms, it was my opinion that his trouble originated with the vermiform appendix, and that the other parts of the abdominal cavity had become affected secondarily; and, owing to the extremely red tongue and occasional rigors, there was a strong probability of the existence of a small

circumscribed abscess having formed around the vermiform appendix. This opinion was more firmly impressed on my mind as the case developed further, but, owing to the many complications which manifested themselves, I was not well satisfied in my own mind as to whether an operation was advisable or desirable under these circumstances. I saw the case again on April 5 and 13; at the latter date a counsel was held with Dr. J. W. Craig, who confirmed my opinion that operative interference was without doubt the best treatment we could give him, for by this time a circumscribed tumor, with fluctuation, could be distinctly outlined in the right iliac fossa, and which extended well back, producing marked bulging on the right side in the lumbar region. In addition to this, jaundice had made its appearance within the last day or two prior to the operation, leading us to believe that, like Dr. Weir's case, which we have already referred to, the liver had become involved.

After explaining the dangers and uncertainties connected with the operation, the patient finally decided to submit to an operation, and on April 15, assisted by Drs. J. Harvey Craig, J. E. Hodges, and F. H. Harding, I performed a laparotomy and removed the vermiform appendix, the mesentery of which was found to be tubercular. This rudiment was discovered to be distended with semi-solid fecal concretions, and was found completely inclosed in a cyst the size of your thumb, which contained nothing but serum, in addition to the appendix.

I also found, on examination, just before the operation, that the circumscribed dullness, which heretofore had been confined to the right iliac and lumbar regions, had become diffuse; and on opening the abdominal cavity, I found that the adhesions had in part given away and allowed the serum (which had been confined in this heretofore circumscribed portion of the abdominal cavity) to in part escape into the general peritoneal territory. I found nearly two quarts of

this serum, which I carefully drained out. And in addition to this I discovered that the tubercular trouble had extended along the mesentery of the ascending colon and attacked the omentum, and also attacked the liver.

Evidently what we found to be a circumscribed tumor was a collection of this serum, which by adhesions had been confined to the right iliac and lumbar regions, but which just prior to the operation had found its way through the walls of these adhesions into the general abdominal cavity; while the icterus I found was due to adhesions of the omentum, which produced a stenosis of the common bile duct. The vermiform appendix was removed, the adhesions around the common duct loosened up as much as possible, but as we found it was impracticable, as well as impossible, to remove the omentum or other portions of the abdominal viscera, which were involved by the tubercular disease, we contented ourselves with doing what we could for his relief, and after washing out the abdominal cavity, we introduced a drainage-tube and closed up the abdominal wound; and whilst there was no possible chance for his recovery, we had the satisfaction of knowing that the operation gave him decided relief. The abdominal wound closed by first intention, and during the remaining seven days of the patient's life he was much more comfortable than he had been at any time for weeks previous to the operation.

Remarks.—This case presents a very interesting chain of symptoms, which the history and report of the case shows how easy it is to be misled under certain circumstances as to the exact cause or causes which are producing the disease or diseases of the right iliac fossa, and which only operative interference is likely to reveal the true nature of, which in this case was found to be tuberculosis of the mesentery, with associated effusion, which up to a day or two before the operation was circumscribed, and from which it was natural for us to draw the legitimate conclusion that it was pus, owing to all

the symptoms of septic infection which existed, and the fluctuating tumor which was found clearly indicated in the right iliac fossa.

We have already called attention to the importance of making a clear diagnosis in this class of cases; not that an operation will hasten the impending death which stares the patient in the face, but because little benefit outside of temporary relief can be obtained in tubercular disease of the appendix by an operation. But if you do operate, the patient and his friends should be carefully guarded against expecting brilliant results, which under more favorable circumstances might effect a happier termination.

GENERAL CONCLUSIONS.

1. Never adopt the rule of making operative interference the last resort in the treatment of disease peculiar to the right iliac fossa.

2. The only genuine safety for a patient with a diseased vermiform appendix is to have it placed in a bottle of alcohol for the adornment of some surgeon's pathological museum.

3. Early operations in disease of the vermiform appendix is the only safe-guard against recurrent attacks of inflammation, perforation, suppuration, and death.

Never wait for suppuration in attacks of acute appendicitis. Such practice is just as sensible as it is to wait for stercoraceous vomiting and gangrene of the bowel before operating in strangulated hernia; for like in strangulated hernia, procrastination is the thief that has stolen thousands of patients from the physician and surgeon and given them to the undertaker.

RUPTURE OF THE UTERUS IN EARLY MONTHS OF PREGNANCY.

BY H. B. GIBBON, M.D., TIFFIN.

In reporting this case you may not observe much that is of peculiar interest except the terminus of the case, rupture of the uterus being a very rare occurrence; according to some of our recognized statisticians very rare, when occurring at "full term." Bandl's reports from the Lying-in Hospital, at Vienna, covering a space of time of nine years, average one out of every 2,137 patients confined in that institution. Jolly, of Paris, reports an average of one in 3,403 parturitions, and he excludes laceration of the cervix, while in the United States Harris reports but one out of every 4,000 parturients. The records in New York, from the years 1867 to 1875 inclusive, show forty-seven deaths from rupture of the uterus, or a ratio of one in every 6,000. While this may not be correct, it goes to show that it is a very rare thing to have a rupture of the uterus even at a time when it is subject to such violence as it is during parturition.

We find rupture of the uterus during the early months of gestation far more rare, and but few authenticated cases. Leishman furnishes all I have been able to find, and it is to this class, "rupture in the early months of pregnancy," to which the case I am about to report belongs, and one not due to violence, being in this respect an exception to the rule.

With these statistics, gleaned from our standard authors, and the brief statement regarding the case, I shall report briefly something of her history:

Mrs. A., married, aged about thirty-two years, American by birth, of German descent, with a family tendency to corpulency. I first became the family physician in the early part of the year 1885. I was called to attend Mrs. A. in her second confinement, October 3, 1886. In this accouchement her pains were inefficient, and I assisted in her delivery. After the second stage was completed, and while waiting for the completion of the third, I found my patient flowing quite freely. At this warning I began the delivery of the placenta. In this, however, I met with no little resistance from irregularity of uterine contractions, finding hour-glass contraction, and I had to use force to enter the uterine cavity. I found the placenta very firmly adherent, and it required a great deal of scraping and cutting with my finger nails to free it from its attachments. After freeing it I turned out the mass and explored the cavity for any particles that might have been retained, but could find nothing but a roughened surface from which I had removed the placenta. At this time all hemorrhage had ceased, and my patient was clothed and arranged in bed. I, however, noticed an irregularity in the outline of the womb, very perceptible to the touch, through the abdominal walls. This elongation of the left horn of the uterus I considered due to irregular muscular contractions. My patient did very well until the morning of the 10th, seven days after confinement, when she was taken with flooding. Although receiving prompt treatment at the hands of two of our physicians, as I was absent from the city, she came near losing her life. When I saw her upon my return I found her nearly drained of blood, to my great surprise. From this condition, however, she made a slow, but uninterrupted recovery; yet it was some time before the irregularity of the womb, before referred to, disappeared.

During the next year I treated her for ulceration of the cervix uteri. The cervix was very much thickened, ragged from ulceration, and accompanied with a profuse purulent

discharge, a discharge very like such as she said she had been annoyed with since girlhood, even before menstruation was established. This discharge was irritating, so much so that it produced excoriation of the external genitals, for which she had been obliged to use medication for relief.

On the 15th of May, 1887, I was called to see her, when I found her approaching abortion. This she passed through without any difficulty.

June 12, 1888, I again attended her during parturition. I met with the same condition as before, inefficient pains, necessitating assistance in the delivery of the child. The third stage was completed naturally, with very little delay and no unusual loss of blood. She appeared convalescing as smoothly as could be desired until the morning of the 19th, (just seven days after confinement) when she began flowing profusely. I tried injection of tr. iodine, iron and hot water, and administered ergot, but to no effect. When using the curette bleeding ceased, although I was unable to find anything but coagulated blood in what I washed away or took away with the curette. After this she made an uninterrupted recovery.

In the spring of 1889 I again treated her. At this time she was in a very much run-down condition. During the latter part of April and the first half of May I again made uterine applications, the cervix being about as, before described, upon a former occasion, and the discharge was proving very troublesome, irritative to the external genitals. During the menstrual periods there had not been complete ceasing of the flow, but an irregularity. I found the uterus perceptibly enlarged, and an irregularity at the right horn, and incorporating the fundus uteri in this irregularity. Her condition was somewhat improved by treatment.

The early part of the night of June 18, 1889, I was called to see her. She was suddenly taken with a sharp pain (as she described it) through the bowels, something like a colic,

yet it appeared to be in the womb, as nearly as she could locate it. By the time I had arrived at her residence she was feeling quite comfortable. However, I gave a mild anodyne. I then made a vaginal examination, but found no cause for alarm. There was no vaginal discharge other than normal. I remained with her about an hour, and when I left she was feeling quite comfortable. I saw her again the next morning. She was up and caring for her little family as cheery as usual. She said she felt well as usual, except a little tenderness over the abdomen. She looked rather haggard and pale. I had occasion to see her daily from this time until the 21st, as I was visiting another member of the family then sick, and there was no perceptible change in her condition during this time.

I was called hastily on the 22nd between 10 and 11 o'clock, to see her. I found her almost pulseless, sighing respiration, retching and vomiting, and face blanched, scarcely a trace of blood in it. Upon making a vaginal examination there was not a trace of hemorrhage. The uterus was inactive, and os uteri patulous. The abdomen felt full and heavy. Diagnosis, internal hemorrhage, and prognosis unfavorable. Death apparently imminent. I advised a consultation, which was granted. The family stated that she had felt unusually well during the day. She had walked down town, a distance of three-quarters of a mile, in the afternoon, and had spent the evening with one of their neighbors, retiring in her usual health. She was awakened from her first sleep by a sharp pain through the bowels, and immediately sent a message to my office; and upon my arrival I found her in the condition above described. She continued sinking from the time of my arrival until 5 a.m., at which time she died.

Post-mortem sixteen hours after death. Rigor mortis established, no marks of violence. Opening the abdomen we first came in contact with a large blood clot. Removing this with a sponge, so as to expose the pelvic organs, we

found the uterus ruptured across the fundus, and grasped within this rent were the unbroken membranes, containing a fœtus in the fourth month of gestation. The membranes were retained within the grasp of the rent, so that about two-thirds of the sack was in the abdominal cavity. The walls of the uterus at the fundus were very thin, and as they approached the cervix increased very much in thickness. The muscular tissue, as well as the mucous membrane of the uterus, was very friable. A specimen was sent to the pathologist of the Ann Arbor School, but unfortunately he was away, and before his return the specimen had undergone changes, so that an examination was unsatisfactory and worthless.

Present during post mortem: Drs. Bricker, Benner, Dickey, and Dr. Campbell assisting.

GALVANISM IN FIBROID TUMORS OF THE UTERUS.

BY T. M. WRIGHT, M.D., TROY.

The treatment of fibroid tumors of the uterus is of great interest to the general practitioner, as well as to the gynecologist, not only on account of the difficulty encountered in their management, but from the frequency with which we meet them. Every practitioner who takes the trouble to look for the cause of excessive hemorrhage or pain, heaviness and sense of fullness in the pelvis of his patients who are approaching, or are at, the menopause, will find a fibroid, in many unsuspected cases, located either in the uterus or in the walls, encroaching on the cavity or on the surrounding structures. I have treated a few of these cases with the constant galvanic current, and it is to the result of the treatment in these cases that I want to call your attention to-day.

CASE I.

Mrs. R., aged forty-nine, native of Ohio, fleshy and heavy, weight 200 pounds, rather soft and flabby tissue; large, pendulous abdomen; the mother of six healthy children, the youugest fifteen years old when the trouble began. Family history unimportant.

Her first attack was a very severe hemorrhage, lasting two days, and so great that her life was despaired of. On the second day she was seized with violent muscular spasms, accompanied by very high fever and loss of consciousness. The hemorrhage did not cease longer than a week at a time for the following four years, though the greater part

of the time it was only slight. The nervous symptoms and high temperature would recur every two or three months. It was during one of these convulsive seizures, four years after the first attack, that I first saw the patient—July 24, 1888. Temperature, 102°; pulse, 100. She was then flowing freely. On examining the abdomen I found a large oval mass extending from the tubes to three inches above the umbilicus, most prominent a little to the left of the median line, opposite the umbilicus. The sound passed seven and a half inches into the uterine cavity.

I began the application of electricity on the 20th of August, using a twelve-celled McIntosh galvanic battery, the positive, internally, as the active pole. The hemorrhage ceased after the third sitting and never returned. The exact dosage of electricity given at the first ten sittings I am not able to give, as I was not in possession of a milliamperemetre. After that time—September 20—I used a thirty-six-cell McIntosh battery, McIntosh milliamperemetre, and the Bailey current-controller. The internal electrode used was a large fusiform copper electrode, externally the large clay electrode recommended by Apostoli attached to the negative pole. On September 20, I gave 100 milliamperes twelve minutes. In all of the applications the electrodes were sterilized and the cervix thoroughly cleansed. The sittings were given every other day until 275 milliamperes were given at each sitting; time, twelve to fifteen minutes. After the dose reached 175 milliamperes the patient always complained of a great deal of pain during and after the sitting. When the dose had reached 275 milliamperes, the patient said that red-hot wires passing from one electrode to the other would scarcely give more pain. The patient always kept her bed the remainder of the day and night after a sitting.

October 18, the highest part of the tumor was two inches below the umbilicus, and the sound passed five inches into the uterus. Twelve sittings more were given, the dose being

275 milliamperes. The last sitting was November 20. At that time the uterus measured four inches in depth, the fundus being one and a half inches above the pubic arch. The patient has been well ever since. The menses did not return, nor has she had any attack of the nervous trouble.

Although this patient has had no trouble, and, as she supposes, was in perfect health, yet the history would be incomplete were I to omit one circumstance that took place November 25. On that day I was summoned in haste to see this patient. On arriving I was shown some napkins patient had been using. They were saturated with an odorless, pink-colored pus, probably two or three ounces in quantity. This came with a gush from the vagina, and was not repeated. December 8, she came to my office for an examination. On passing a sound into the uterus, about four ounces of pink-colored, odorless pus poured out. I washed out the uterus. There has been no return of it since.

April 19, 1892, I examined the patient, and found the uterus lying high in the pelvis, fundus two inches above pubic arch, a little longer than normal. The patient says she is in good health, and weighs 220 pounds.

CASE II.

Mrs. R., very light mulatto, aged fifty years. Family history unimportant. Mother of one child twenty-two years old; no miscarriages. Four years ago first noticed that her menstruation was more profuse than usual. This continued two years. The first week in June, 1890, she had a very profuse hemorrhage lasting a whole week, and did not cease until the 10th of the month. On that day she was an ashy pale color, much exhausted, and compelled to keep her bed. On examination, the pelvis was found packed full and solid. The uterus was enlarged and quite hard. Springing from the left side, subperitoneal, was a tumor three inches in diameter, adherent to the surrounding structures, and immovable. On the right side, very low down, involving the

lower segment of the uterus and upper part of the neck, was a tumor about the same size as the other, also packed firmly and adherent to the surrounding structures. These tumors were almost globular, and had the apparent firmness of a billiard ball. The uterus and tumors were firmly fixed and immovable by firm adhesions. The history of the case gave account of some very severe attacks of pain and inflammation in the pelvis during the two years just preceding.

June 10, 1890, I gave an application of the galvanic current. A large sheet of lead covered with absorbent cotton was applied to the abdomen, to which the negative pole was attached, the platinum electrode in the uterus as the active pole; the electrode passed four inches into the uterus. The dose given at that time was seventy-five milliamperes; time ten minutes. The sittings were given every other day, and the dose gradually increased fifteen milliamperes at a sitting until two hundred and fifty milliamperes were given at each dose; time ten to twelve minutes. This dose caused a good deal of pain, but was reasonably well borne by the patient. July 1, the uterus was movable; the adhesions around the tumors were partially absorbed, so that the tumor on the left was above the brim of the pelvis, and quite movable without pain. The sense of fullness and pressure on the pelvis was greatly relieved, and the pain due to the pressure was entirely relieved. The patient menstruated regularly and normally at this time. There was no reduction in the size of the tumors, nor was the uterus any smaller. I gave ten more sittings, the dose varying from one hundred and twenty-five milliamperes to two hundred and fifty milliamperes. The tumors had not been reduced in size, nor the uterus in depth. The metrorrhagia was completely controlled, and has never returned.

There has been no return of pain until March, 1892, and the patient is not sure that the pain at this time was from the tumors or from the hip-joint disease from which she had

been suffering for more than a year. I examined her April 18, 1892. I find the uterus and tumor in the right side more firmly fixed than they were twenty-one months ago. The tumors and the uterus have increased in size till I think they are one-third larger than on August 15, 1890, when I examined them last before. The patient now menstruates regularly, but a little more profusely than normal.

CASE III.

Mrs. P., aged forty-seven, white, from a healthy family, mother of six children; no miscarriages, youngest child fifteen. The patient came to me in July, 1890, with a history of profuse menstruation for two years past, but not much metrorrhagia. In the abdomen was an oval tumor that extended one inch above the umbilicus. The sound passed six inches into the uterus.

I did not see this patient again until February 21, 1891. She had taken electricity, in twenty-five sittings, from Dr. W. K. Thompson, of Troy, O., the dose varying from 100 to 300 milliamperes, negative internally. The uterus had been reduced in size, and the menstruation was not so profuse. At this time she was flowing quite freely. I gave her 200 milliamperes for ten minutes; positive pole internally, the negative on the abdomen attached to the large lead plate. On the 24th I gave another sitting—225 milliamperes ten minutes; another sitting March 5—250 milliamperes ten minutes. This treatment brought on pretty severe uterine contractions. I did not see her again until April 12, at her home. She had been having a fetid, purulent discharge, accompanied by more or less fever all the time, for three weeks past, and part of the time a very high temperature and occasionally a chill. In fact, she was having a pretty severe run of septicæmia. I insisted on dilating and removing the offensive mass which I was sure was in the uterus and gradually poisoning her to death. She refused any operative interference at that time. In a day or two the

cervix began to dilate, and her attending physician could feel a mass presenting at the internal os. The uterus had been washed out three times a day during the whole time.

On April 21, 1891, I was summoned to see the patient. The external os was partially dilated. The patient was etherized and placed on the table. I dilated the os thoroughly and removed the mass, which was still adherent to the anterior wall of the uterus by a strip about one inch wide and four inches long. The uterus was washed out thoroughly. It contracted down well and dropped into the pelvis till only one and a half inches remained above the brim. The temperature fell to normal that night and remained so. The patient made a rapid recovery. The tumor was seven inches long by three and one-half inches in diameter.

July 22, 1891, the patient presented herself at my office, stating that she thought her tumor was growing again. The fundus was two inches above the pubic arch. The sound passed four and a half inches into the uterus. The patient had no metrorrhagia and no pain. On that day I gave her 250 milliamperes, negative internally, time ten minutes. In the interval from July 22, to August 10, she had a profuse watery discharge, occasionally tinged with blood. August 10, I gave 80 milliamperes, positive pole internally, time ten minutes. The patient then attended regularly at my office, received fifteen doses of electricity of 250 to 300 milliamperes at each sitting, time ten minutes, negative pole internally. September 21, the uterus measured three and a half inches in depth, and was one inch above pubic arch.

I have examined the patient several times since, and find the uterus remains the same in size and the menses normal and at regular intervals.

CASE IV.

Mrs. H., aged forty-five, the mother of six children, no miscarriages; a large, stoutly-built woman. Family history unimportant. She had had a serious stomach trouble for

five or six years. She came to my office December 30, 1891, complaining of weight and fullness in the pelvis, and very great pain, also frequency of micturition. It was for this symptom that she sought relief. On examination, there was found a mass extending from very low down in the vagina to half way between the pubes and the umbilicus. The sound would not pass into the uterus further than the internal os. There was a mass crowding forward against the pubic arch, and extending low down into the neck of the uterus. The whole mass was very firmly fixed in the pelvis. In each groin there was an enlarged gland the size of a guinea egg. On the left side of the median line, beginning at the enlarged gland on that side, was a chain of enlarged glands extending to a mass in the abdominal wall to the left of the umbilicus. She had been bleeding some at intervals for two weeks. On that day I gave her 50 milliamperes ten minutes, positive electrode internally.

The patient did not return till January 11, 1892. She had menstruated in the interval. January 11, I gave her seventy-five milliamperes eight minutes, and January 13, one hundred milliamperes eight minutes, positive internally. There had been no hemorrhage since the first treatment, and the active pole was changed for the negative internally. The dose was increased twenty-five milliamperes each sitting until it reached 100 milliamperes, January 23, in five sittings. This sitting was followed by quite severe pain, much resembling labor-pains. On January 27, 160 milliamperes were given which were well borne. The tumor that on December 30, extended to half way from pubes to umbilicus, and was firmly fixed, was movable and had risen to one inch above the umbilicus. Evidently the adhesions had been partly absorbed, as the uterus was not so firmly fixed in the pelvis, nor was it so low down. The pain from the pressure and from frequent micturition was relieved almost entirely.

The patient then took the grippe, and was very seriously

sick for more than a week. The stomach trouble developed rapidly, and it is the opinion of counsel that cancer of the stomach is rapidly developing.

I report this case merely to record the fact of the rapid absorption of adhesions and the relief of pelvic pain, even though malignant disease was rapidly developing in the neighborhood and in other vital organs.

CONCLUSIONS.

We believe the following conclusions may be drawn from these cases:

1. Electricity is capable of exciting absorption, and of entirely removing large myomata of the uterus.

2. There is a class of tumors where the fibrous structure far exceeds the muscular structure, in which electricity, applied without puncture, fails to reduce the size of the tumor.

3. Intercurrent, inflammatory disease interferes with the action of electricity on fibroids.

4. Electricity produces much more rapid reduction in size of fibroids when the current is strong—150 to 200 milliamperes.

5. A current of 200 milliamperes, positive internally, is capable of producing the death of the tissue, as was shown by Case III.

6. Electricity is a most elegant tonic, and rarely or never fails to benefit the patient's general health very much during the course of treatment of fibroids.

7. Electricity is capable of controlling the hemorrhage due to fibroids far more perfectly than any other means at our command.

METHYL VIOLET AND BLUE.

BY JAMES T. WHITTAKER, M.D., CINCINNATI.

As I am able in the short time allotted to each paper to present but part of my subject, I will ask permission to read a short *résumé* of the observations made by others, and then report my own cases in what time is left.

The first general knowledge of the aniline preparations came to us through the studies of the bacteriologists. As is now well known, the tubercle bacillus was discovered and declared by Koch in 1882 with the aid of methylene blue. The next reference was the claim by Kremiansky, in 1888, to destroy this bacillus by causing patients to inhale this coloring matter. Then J. Stilling, Professor of the University of Strasburg, 1890, made the discovery that certain aniline dyes exercise a destructive effect upon bacteria in the living organism, and especially upon *suppurating surfaces*, hence he gave one of them the name pyoktanin, from πυον, pus, and κτεινω, I destroy.

Pyoktanin not only excludes noxious matter from the wound, he says, but destroys it in the wound and thus heals wounds and ulcers. It is entirely innocuous and odorless, but colors tissues profoundly, a point of value to the physician, as it gives him control of the region of application. The color is easily removed by the spirit of soap. It is used in the following forms: Powder 2 per cent., ointment, pencils, pastilles for the preparation of solutions; bandage 1 per cent., of gauze, cotton, silk.

The author issued a second edition of his first report in

the same year. Antiseptics hitherto in use, he said, not only destroy bacteria, but also injure tissues to such a degree that a number of surgeons had abandoned them altogether, and were content with simple cleanliness with the use of heat and sterilized water. The botanists have long been acquainted with the fact that bacteria, bacilli and cocci of every kind are destroyed so soon as a membrane is thoroughly permeated by the diffusion of aniline dyes and intense coloration of protoplasm. Anthrax bacilli, pus microörganisms, etc., absorb these colors like a sponge. Bacteria are found to be colored before the coloring fluid can be seen in the field of vision. With intense coloration, movement ceases; the cell perishes. To determine whether these things which can be so easily recognized in cultures and upon the object glass may be seen also in the living organism, was the question which the author set himself to solve. Stilling engaged with him in his work J. Worthman. They discovered that the violet aniline colors were the most practicable. Other dyes, fuchsin, methyl blue, vesuvine were less valuable. Methyl violet excelled all the colors, but had to be abandoned at first on account of its impurities with arsenic. In experiments upon animals, it was found that methyl violet introduced into the conjunctival sac, colored everything profoundly, and imparted with its deposit a metallic lustre to the conjunctiva and cornea. The epithelium desquamated in great masses in a few days, and showed under the microscope marked fatty degeneration, almost the picture of the phosphorous kidney. But these masses, together with the whole conjunctival sac, were free of bacteria.

Methyl violet in man causes dilatation of the pupils without paralysis of accommodation. Introduced in strong solutions, 1:1,000, into the eye, it colors the sclerotic and conjunctiva intensely. The iris is markedly colored. Strange to say, it traverses the normal cornea without sensibly coloring it. But if the epithelium be broken, however slightly, the

cornea is colored intensely. By the next day nothing of the color is to be seen. Great quantities can be injected subcutaneously in the rabbit and guinea pig; as much as 20 ccm. of a 1:1,000 solution without injury. But great quantities introduced into the peritoneal cavity quickly produce death. Examination post-mortem shows the whole contents of the abdomen intensely colored blue. The blood keeps its normal color, and strange to say again, the blood-vessels, even of the colored abdominal organs, remain entirely free. Of serous exudation or even of inflammation, there is no trace. Death follows probably in consequence of coloration and therewith paralysis of important nerve centres. All this of course concerning chemically pure aniline colors.

Theoretically, the author has found that a hypopyon *keratitis* in rabbits, artificially produced by inoculation with the staphylococcus pyogenes aureus, was quickly jugulated with the instillation of a few drops of methyl violet solution. Not only the surface of the ulcer, but also the pus floccules in the anterior chamber were colored. Scrofulous corneal ulcers which had hitherto defied all treatment were seen to heal under it by the instillation of a few drops, or by sterilization by means of the aniline pencil. Similar results were obtained in *blepharitis, conjunctivitis, phlyctenulæ and eczema of the lids.* Quite as remarkable were the results obtained in parenchymatous keratitis, serous iritis, and even in internal diseases, disseminated choroiditis, sympathetic ophthalmia.

The same effects were observed in surgical cases, as in *suppurating inflammations*, in the bed of the finger-nails, panaritium, burns, etc. The authors soon reached the conclusion that suppurative wounds and ulcers treated with aniline colors are certainly sterilized, provided only the dye be made everywhere to reach the pus. An old man of seventy had on the whole of the left leg a profusely suppurating *varicose ulcer* which refused to heal. After thorough sterilization with the aniline dye, it healed in a few days. The

authors extended their observation to the field of antisepsis in gynecology and obstetrics. Methyl violet solutions of 1:1,000 to 1:2,000 suffice for the sterilization of instruments. Wounds are washed with solutions of 1:2,000 to 1:1,000; sewing silks, cotton and gauze are impregnated with 1:1,000. Stitch abscesses are impossible under this *régimé*. Florid suppurating processes must be subjected to appropriate technique by insertion of solid masses with pencils, powder, etc.

The authors take a bird's-eye view of the possibility of therapy in infections which do not depend upon the bacteria of pus, and intimated that remarkable results are to be accomplished in syphilis and many diseases of the skin. They had, they declare, very satisfactory results in the treatment of ulcers.

The aniline dyes with which the authors experimented were prepared by Merck, of Darmstadt, and offered under the names pyoktanine cæruleum and aureum. The latter of course is not a violet, but a yellow aniline dye, which is especially appropriate in diseases of the eye.

These remarkable statements were not allowed to go long unchallenged. Carl, of Frankfort, found that in the lighter forms of conjunctival catarrh and the milder cases of blenorrhœa neonatorum and scrofulous conjunctivitis, methyl violet had about the same virtue as a weak solution of boric acid. In granulations it was necessary to appeal to caustics.

As to affections of the cornea, the author never got any jugulation by methyl violet. In one case circular abscesses with subsequent dissolution of the cornea occurred. Whether or not it was due to the methyl violet, it was impossible to say, but it impressed upon the author the necessity of caution in its use.

Braunschweig, of Graefe's clinic in Halle, treated seventy cases with pyoktanin. In one case of perforation injury, it seemed that the remedy, if it did not prevent, at least retarded a beginning panophthalmia. All the other cases

were hardly much benefited by the use of it. All the corneal ulcers cauterized and later subjected to paracentesis showed as good a result as with aniline, and in a much shorter time. The author therefore could not agree with the claim of Stilling that methyl violet surpasses all other remedies hitherto in use in the treatment of corneal ulcers. In a certain series of cases, it seemed to exercise a direct injurious effect. A small tubercle on the hand of a servant in the anatomical room touched twice energetically with the methyl pencil, so far from curing the affection developed a fresh lymphangitis, which brought the patient to the surgical clinic.

Lainati and Denti found the remarkable claim of Stilling established in only one of all the cases in which they used the remedy.

Next, Jaenicke published the result of his bacteriological studies, showing the effect of methyl violet and auramine on pure cultures of the staphylococcus pyogenes aureus, streptococcus pyogenes, bacillus anthracis, typhus and cholera bacilli. The most successfully treated of all the microörganisms was the staphylococcus aureus, whose growth in bouillon was entirely checked with a solution of methyl violet as weak as 1:2,000,000. Then followed the anthrax bacillus, streptococcus, cholera bacillus. The typhus bacillus continued to grow at 1:5,000, a concentration followed by deposit of the coloring matter. Cultures on blood serum required much higher concentrations, but the relative resistance of individual bacteria was the same as that in bouillon cultures.

The efficacy of the yellow coloring matter, auramine, was much less. As to the destructive effect upon bacteria, it was shown that the staphylococcus pyogenes aureus was destroyed with the solution of 1:1,000 in half a minute.

Concerning toxic effects, rabbits endured the subcutaneous use of a solution 1:1,000, if the amount of coloring matter introduced stood in relation to the weight of the animal 1 to 35—50,000. But the injections of much weaker solutions in

still smaller quantities into the peritoneal sac causes death almost without exception.

Schubert reports that while pyoktanin was of no value in two cases of keratitis, it is of very decided value in those contused wounds of the fingers and toes, which occurred in stone workers. The patients came direct from their work with dirty hands and feet. No water was applied purposely, but the wound surface and the whole members, fingers and toes were penciled with solutions 1:500–1,000. The crushed parts were restored to their position, not united by ligatures, but simply retained by a bandage of iodoform gauze, and over it was run a cotton and a starch bandage. By the next day the wound showed a beautiful rosy color and no sign of inflammation. The treatment was repeated. On the next day a union had taken place. A simple zinc salve finished the treatment in a short time, five days. A superficial panaritium in one of the same patients was healed with a single brushing with a pyoktanin solution. Schubert says he was led to use the remedy in this way by the belief that the bacteria had not penetrated to the depths of the tissue, and that if they could be thoroughly reached at once, they would be deprived of any possibility of injury; and so it turned out. The wound showed, as stated, on the very next day a fine, fresh rose color without the slightest sign of irritation. With the exception of some burning there was no pain after the penciling. The author recommends the use of the brush with the stronger solution 1:500–1,000.

On the other hand, again, Garré and Troje, of Tubingen, found the remedy of not the slightest value in suppurative wounds and ulcers, panaritium ulcers of the leg and phlegmonous inflammations. According to the bacteriological investigations of Troje, pyoktanin does inhibit the development, but even after twelve hours, does not certainly destroy the microörganisms of pus.

Peterson, of St. Petersburg, treated forty-eight patients

with the pyoktanin pencil or solution. Twenty were cases of ulcus molle, eight ulcus durum, the remaining twenty were cases of ozæna, ulcera gummosa, keratitis, and a few small incised wounds. A 1 per cent. solution in a case of *ozæna syphilitica* destroyed the odor at once and cleansed the ulcer in the course of three to four days. Favorable results were observed in all the other cases, so that the author comes to the following conclusion: Pyoktanin used in pencil or powder 2:1,000, talc and solution 1:1–100–2,000, certainly acts as an antimycotic in infected as well as in non-infected wound surfaces, and ulcers. It is as good as iodoform, and has the advantage of lack of odor. It shows the same virtues in cases of ulcus molle and gummatous ulcers in cases of disease of the eye. Complications or toxic effects of any kind were not observed.

Since his first report, the author in hundreds of successive cases of ulcus molle has abandoned the use of iodoform altogether for that of pyoktanin. The same good effects were obtained in cases of urethritis after injections of 1:1,000 to 1:100. But the preparation is to be used with care because it discolors linen. The timely touch of dilute hydrochloric acid will remove the spots from the hands and wash.

Kessler, of New York, used the remedy in forty-two cases with remarkable results. One case of a *syphilitic ulceration* of the head which had withstood all treatment for two months ceased to suppurate at once after drainage and the use of a strong solution. Another case of bad *decubitus* in a paralyzed man, which a number of physicians had tried in vain to heal, stopped suppurating in twenty-four hours after the use of pyoktanin in substance, and showed every prospect at the time of report of covering the surface with healthy granulations.

Fessler, of Munich, covers in recent wounds of the head with a solution of 1:10,000 and a layer of hydrophilic gauze moistened in the same solution. Healing occurs in a few

days without any reaction. The same results were obtained in a more extensive injury to the head which reached down to the bones. Bacteriological experiments showed that antimycotic properties are obtained only with a somewhat stronger concentration. The author found a solution of 1:1,000 most useful. Wounds show very quickly after the use of methyl violet a fresh, red appearance, while the inflammation speedily subsides.

Kanne used a pure preparation free of arsenic and phenol in the treatment of *acute gonorrhœa*. The discharge was diminished one-half after the very first injection. The second injection reduced it to a minimum and the third stopped it altogether. The patient was thus cured in four days.

Mosetig-Moorhaf, of Vienna, reports on the use of the aniline dyes in *inoperable malignant neoplasms*. The results were obtained in sarcoma as well as in carcinoma, but better in the first than in the last. The subjective signs of improvement were diminution of pain, increase in the general health, elevation of spirits, improvement of the functions of the affected organs. Objective changes were shown in certain cases, sometimes earlier and sometimes later, in diminution of the size of the tumors. Sometimes the treatment failed in highly vascular and extremely rapidly growing, soft tumors, but even in these most refractory neoplasms there could be observed a temporary check, or at least a diminished advance of the growth. One of the remarkable observations in cases of ulcerative neoplasms was the general cicatrization of the whole surface, especially if methyl violet had been applied directly to the surface. The author observed as immediate effects after parenchymatous injections the following appearances, which, however, did not reveal themselves constantly: œdematous swelling of the injected parts and their vicinity without inflammatory reaction; the development of centres of softening; sometimes constitutional signs, chills

and fever. In conclusion, it is repeatedly emphasized as a practical demonstration that certain cases, it may be exceptional cases, of malignant neoplasms, are caused to disappear under aniline therapy, and that neoplastic ulcers are brought to a state of cicatrization. As to recurrence, the remedy is too new for facts. Pyoktannin cæruleum is certainly indicated in all those cases of malignant neoplasms which, on account of neglect or previous operative failure, may not be addressed in other ways. The latest improvement in the remedy is the substitution of pyoktannin by carmine, *i. e.*, carmine 1.0 to 10 per cent., soda lye 1.5, distilled water 50.0. Mosetig maintains that the effect of carmine is more sure than that of pyoktanin. Cleveland, of Cincinnati, in a verbal report to the writer, uses carmine habitually in these cases.

Boas, of Berlin, comments on the report of Stilling and Worthman, and the various contradictory reports that have since been furnished. The investigations of Beck and Penzoldt with the staphylococcus aureus and milsbrand bacillus certainly demonstrate the inhibitive effect of aniline colors. Liebreich called attention to the fact that the violet dye, especially methyl violet, has such a various origin and different composition that results are uncontrollable. This fact may account for the diversities of individual observation. Braunschweig, as quoted, found opacities of the cornea and pseudo-croupous inflammations of the mucous membrane after their use. Mauthner makes a similar complaint. Rölloff had but little good to report from the polyclinic of Kolliker. They could see in no case a jugulation or a control of the process of suppuration. Patrezek reported bad results in the field of otology. On the other hand, Bresgen was more fortunate with diseases of the nose after caustics with the use of a solution of methyl violet 2:1,000. The application of cotton dipped in such solution brought about a speedy cure. Kellerer reported a quick improvement in a case of croup

with the appearance of stenosis, under inhalation of a solution of 5:2,000. Scheimann recommended the remedy in tuberculous ulceration of the larynx and the nose. It has been used also in catarrh of the bladder and cervical catarrh. Subsequent communications vary in the same way. Peterson, though, supports the remedy. Wancher is very friendly to it in the field of ophthalmology. It is a remedy of extra virtue, he claims, in suppuration of the tear sac. Cholewa found pyoktanin valuable when strewed as powder in suppuration of the frontal sinus.

The reviewer quotes next Mosetig-Moorhof's observation in malignant neoplasms, notwithstanding the fact that Stilling had maintained that injections of aniline coloring matters into the circulation might not remain innocent. The best preparation for such purposes, Stilling maintains to be the pure hydrochlorate of hexæthylpararosanilin, which has been brought out by Merck under the name ethyl pyoktanin. Schleu recorded a case of cure of cancroid of the cheek by the use of pyoktanin in powder. In this connection also should be reported the case of Einhorn, of an inoperable carcinoma of the uterus which was much improved by an internal treatment with 0.2 methyl blue in fourteen days. The tumor became smaller and harder. Boas claims that he saw in a case of cancer of the stomach, after an injection of methyl violet 1:300, favorable effect upon the appetite and general health. The tenderness of the tumor diminished, but the final exitus was not prevented by these injections. Billroth sees no good effect in cancer or sarcoma. It must be remembered that an absolutely chemically pure individual preparation is not yet in the market.

Based upon the observation that methyl blue exercises a particular effect upon the nervous system, Ehrlich and Leppmann employed the remedy in neuritic processes and in rheumatic affections of the muscles, joints and tendons. The analgesic effects occurred, without exception, in a few hours

after the introduction of the remedy, and increased after appropriate dosage in the course of the following hours, until all pain disappeared. The appetite, digestion, pulse frequency, general strength, were not affected by the remedy. It was given either subcutaneously 0.02–0.08, or internally 0.1–0.5 in gelatine capsules. The highest daily dose was one gramme (15 grains). Lenne observed also in a case of carcinoma of the pylorus and liver, the analgesic effect of methyl blue 0.2 in capsule. Immerwahr had in six cases of sciatica no success, but in two cases of trigeminus neuralgia, the most surprising success. The remedy proved of great value also in three cases of angio-spastic migraine. Cases of nervous headache and katzenjammer were quickly allayed by methyl blue 0.1. The same author observed favorable results also in muscle rheumatism and herpes zoster.

In his last communication, Stilling remarks that two years have now elapsed since the introduction of the aniline colors as antiseptics, during all of which time the remedies still hold their place. To the objection of Liebreich that pyoktanin is not a chemically pure body, it is urged that Merck has brought into the market a pyoktanin cæruleum which is at least free from all admixture with arsenic, phenol, sulphate of copper and chloride of zinc. This preparation is entirely innocent. No one except Braunschweig has ever seen any really injurious effects; and in his cases, the evil effects were due to the fact that he used a common commercial methyl violet, which Stilling long ago warned against as dangerous. The fact that the ophthalmologists got no bad results with their use of the pure preparation is the best proof of its innocence. Very recently chemists had prepared a blue pyoktanin which is a definite body, chemically pure, the so-called ethyl pyoktanin. Merck also had a crystallized pyoktanin, known as crystal violet, which is likewise absolutely chemically pure and constant. This substance, with methyl blue and malachite green, is better adapted for some

purposes, because more easily soluble in common salt and less easily diffusible than methyl blue. In the treatment of wounds and ulcers, methyl blue is not so valuable as the more powerful antiseptic, pyoktanin, which has also the additional virtue that it remains longer upon the surface. On the other hand, for internal use, methyl blue is much preferred, because of its penetration. For the same reasons intestinal mycoses are best treated by pyoktanin, which remains upon the surface.

The author still maintains that the further use of pyoktanin has only confirmed him in his original opinion regarding the value of the remedy in checking suppuration. Gelpke, of Carlsruhe, got the most remarkable results in cases of corneal disease, where other methods had left the physician in despair. The difference of different observers depends upon a simple fact. In the lighter cases, where the surface is not sufficiently broken, the remedy does not penetrate to the depths as it does in the worst cases of broken ulcerated surfaces. The ophthalmologists, Meyer and Panas, accept the method, and confirm the results in cases of corneal ulcer.

Liebreich's detractions regarding the impurity of the preparations put a damper on experiments with the drug for some time. It made many investigators timid, and subsequent studies were very tenative. Now, however, that this objection has been nearly overcome, it is seen that we possess in these agents antimycotics that are singularly innocent to the tissues. All comparisons among disinfectants must start out with the solutions of sublimate which still surpass everything known. Corrosive sublimate destroys bacteria in general without spores in the proportion of 1:10,000, and with spores 1:1,000. The pus microörganisms have no spores; neither does the diplococcus of pneumonia. The bacillus of typhoid fever, of diphtheria, of glanders, so far as is known form no spores; neither do the spirilla of cholera and relapsing fever. But though the dilute solutions of sublimate are

strong enough to destroy these bacteria out of the body, they do not attack them in the body, because of the combinations they make with albumen, which weaken the sublimate or quickly decompose it. Thus the cholera spirillum is killed by sublimate in the proportion of 1:60,000, but in blood serum only 1:1,000 or 1:800. The typhoid bacillus in bouillon is killed by sublimate 1:10,000, but with 10 per cent. egg albumen the solution must be 1:1,000.

Various methods have been devised to preserve the supreme power of sublimate in the presence of albumen, as by the addition of sodium or ammonium chloride, of hydrochloric acid, etc., and with such effect as to have largely met the difficulty, but nothing has been discovered which will make corrosive sublimate safe. So that the use of it, except as an outside aseptic and disinfectant, has been practically abandoned.

The aniline dyes do not unite with albumen. They make no compounds. They penetrate directly and entirely, sometimes so quickly as to disappear from the surface visibly.

According to Boen, bouillon cultures of pathogenic bacilli are sterilized by aniline violet in two hours in the following proportions:

Anthrax bacillus, 1:5,000; diphtheria bacillus, 1:2,000; typhoid bacillus, 1:200; cholera spirillum, I:1,000.

Malachite green is still more active, as it destroys anthrax bacillus, 1:40,000; diphtheria bacillus, 1:8,000; glanders bacillus, 1:300; cholera spirillum, 1:3,000.

In many regards these figures correspond to the potency of carbolic acid. Carbolic acid is much more stable and much less influenced by albumen than the mercuric chloride.

Bolton found that the addition of 10 per cent. of egg albumen to bouillon cultures of typhoid bacillus did not materially influence the result. This of the pure acid, of course. But much of the carbolic acid of commerce is not

pure. The crude contains only 25 per cent. phenol; that is, three-fourths of it is impure.

There is objection to carbolic acid in that in concentration it has caustic effect, and in quantity toxic effect. The anilines have no causticity whatever, and when pure no toxicity.

The only other agent with which the anilines might be compared is the old potass. permanganate, which the older practitioners remember was in fashion as a disinfectant in their earlier days. But the permanganate is farther behind in virtue than in time. According to Jaeger, it is very feeble. It fails to destroy the anthrax bacillus without spores in the proportion of 1:100. To produce this effect it must be present in fact in the proportion of 1:20. A percentage so great as 1:50, according to Sternberg, fails to attack the micrococcus of Pasteur in the blood of a rabbit.

The rapid diffusibility of the anilines would *seem* to put them in the first place as internal antimycotics. But there is of course no seem in science. They must be tried in individual diseases. In tuberculosis they made a flat fiasco. Kremiansky claimed to have wrought remarkable results, but the claim had no support other than temporary general improvement.

Bertalero afterwards published the cure of eight cases. Billings failed with two, and Seslaim tried it faithfully and failed utterly. It is only fair to say, however, that the remedy was used in these cases by inhalation, which is a useless method of employing anything in tuberculosis, because the bacilli in the bronchi and in cavities and abscesses are already dead.

Guttman and Ehrlich published their famous experiments with malaria in the *Berlin Klin. Wochenschrift*, September 28, 1891. They demonstrated the disease by coloring the plasmodium from a drop of blood from the finger by the

Italian method, *i.e.*, by treating the drop with a little human blood serum lightly tinged with methylene blue. They were led to use the drug therapeutically because of its property of penetrating to the corpuscles and coloring the nuclei of nucleated bodies. The result was very remarkable, to use with as little emphasis as possible this highly elastic and much abused term. Remarkable, as these authors said, because no combination of chemistry ever yet devised a drug which could produce any effect upon the parasites of this disease. The fever disappeared in the first few days, and the parasites disappeared from the blood at the end of the first week. They gave the remedy in doses of two grains in capsules five times a day, at first at intervals of three hours, and later, to anticipate a quotidian attack, every hour, five times. It was found necessary to continue the remedy in doses of seven or eight grains per day for eight or ten days, and in very severe cases a much longer time. The maximum dose ever administered was ten grains. The only evil that ever followed was irritation of the bladder, frequent micturition and dysuria. This evil was easily obviated by the use of powdered nutmeg, the end of a case knife full several times a day, a remedy in old use in Munich in relief of irritation of the bladder after the ingestion of fresh beer. The oil of nutmeg does not answer so well. Grawitz failed in breaking up one severe case in which he afterwards succeeded with quinine, and in another case in which he could find no plasmodii in the blood.

During the last three months I have made use of solutions of methyl violet and blue in all the cases hitherto mentioned except the purely surgical cases. I made it a point to substitute it for every other antiseptic, disinfectant or antimycotic agent in ordinary routine office practice. I soon reached the conclusion that much stronger solutions than those mentioned could be borne not only with impunity but with benefit, and had the remedy prepared in the strength of 1-100. These

were my standard solutions and are indicated, unless otherwise specified, in all the cases mentioned.

The mode of application was for the most part with a cotton-wrapped sound. I use the perfectly smooth, flat steel rod about the diameter of a uterine sound, very lightly indented with half a dozen notches on each side at the end. A strip of cotton is quickly turned about the rod with a twisting motion of the handle to the extent of four to six inches, that the index finger of the right hand may fix the end of the cotton and prevent its detachment on withdrawal from a cavity with close walls, as from the nose or cervix uteri. After withdrawal, the cotton is quickly stripped from the rod by the aid of a piece of fresh cotton between the finger and thumb, that the hands, especially the finger nails, may receive no stain. Sensitive surfaces are anæsthetized with cocaine, 4 per cent. solution, applied in the same way. The cocaine is used simply to blunt the sensation of pain produced by the cotton itself, not by the remedy, which when pure, as stated, excites no pain or other irritation. Any accidental staining of the fingers of the practitioner or the face of the patient may be quickly washed away.

In the throat the remedy is best applied by means of a ball of absorbent cotton with the laryngeal forceps. Simple catarrhal effections are subjected to a universal swabbing process with a large mass of cotton. Laryngeal lesions are addressed more directly with a mirror and a small pledget in the grasp of the laryngeal forceps. In extensive intralaryngeal disease, syphilis, tuberculosis, I allow the fluid to be squeezed out in quantity, by the contraction of the larynx, from a larger mass of saturated cotton introduced into the larynx itself. The irritation thus experienced is not greater than that which follows the use of cocaine, and is all due not to the drug, but to the foreign body. The urethra is treated by means of injection, either by the catheter of Ultzmann in medication of the prostate and its urethra, or by the full-

length catheter in the treatment of the bladder itself. The remedy is so quickly eliminated by the kidneys as often to medicate the bladder and urethra sufficiently by internal treatment.

Messrs. Fennel and Heister, druggists of this city, have been kind enough to prepare the specimens which I now present, to-wit: tablets and capsules of one and two grains of methyl violet and blue. The remedy is given preferably in capsule internally, to prevent staining of the mouth. I have here also a specimen of urine passed by a patient this morning after having taken a two grain capsule of mythyl blue last night upon retiring. The urine is as blue as if colored by indigo. Patients thus treated will continue to pass urine colored in this way sometimes for twenty-four to forty-eight hours after cessation of the remedy. The secretion then passes through various shades of light blue and green before it reaches its natural color. It commonly happens that patients will then, after a lapse of several hours or even days, again pass colored urine, proof that the substance, however diffusible, remains confined for some time in certain parts of the kidney; illustration also of the fact that healthy urine may come from a diseased kidney, that is from sound parts of a diseased kidney, explaining the alternating presence and absence at times of albumen.

I present to the Society also the body of a rabbit, split open along its abdominal surface and everted. It will be seen that the abdominal organs, including the peritoneum, are stained various shades of blue from a light bluish gray, as best shown in the colon, to the deep blue of the extended peritoneum. This animal received one hour ago four hypodermatic syringefuls of a solution of methyl blue 1:500. The injections were made all subcutaneous only, the animal showing, between the time of the injections and the death by chloroform, no signs of distress whatever.

I have had no experience whatever with the use of the

remedy in the eye or ear, but abundant experience in the nose. Catarrh of the nasal fossæ is the most common malady that presents itself in office practice. It is for the most part a trivial malady with associate mental distress out of all proportion to the lesion. Nasal catarrh is for the most part simply an objective and obtrusive excuse for complaint by idle and querulous people. Cure of the catarrh will not cure the patient but will remove the reproach from medicine to some domestic infelicity or other incapacity of this class. The application of methyl violet upon the cotton wrapped sound dries up the excessive secretions, relieves the sense of fullness and oppression of which these patients make such complaint. It is especially valuable after the use of the galvanic cautery, the use of which with the cheap apparatus recently devised, has become a universal fashion. The effect is not so good in the throat, as the remedy disappears so quickly from the surface. Methyl blue sinks into the mucous membrane like water in sand. Patients sometimes pass blue urine after a single treatment of the throat in this way. Methyl violet remains longer upon the surface and hence is better adapted to these cases. The moisture of excessive secretion disappears after the use of methyl violet to leave a surface more dry and glazed. Methyl violet is equally efficacious with the nitrate of silver and causes much less distress than the stronger solutions, one or two per cent. of nitrate of silver, which alone are of any value in pharyngeal catarrh. Both preparations give more relief in cases of laryngeal affection, especially in laryngeal tuberculosis, than any other remedy except cocaine, and the relief of cocaine is so transitory as to be of little value.

With the first publication of the experiments of Kremiansky I gave methyl blue thorough trial by inhalation, especially in the bronchitis of tuberculosis, and as stated for the reason we now understand, without effect. But upon the endometrium, methyl violet acts better than carbolic acid and

has the advantage over it that it produces no subsequent desquamation with retention.

Catarrh of the bladder is a proper field for the use of the remedy. It may be introduced by injection, as stated, in the proportion of 1-1,000, when it has about the value of a solution of the bichloride 1-20,000. It is a little harder to handle on account of its stain, but is always less irritating than the weakest solutions of the bi-chloride. Pyelitis, cystitis, prostatitis, are affections which call for the use of the remedy internally. Here it should be given in dose of 1 or 2 grains every two to six hours. So soon as it appears in the urine, it stops all decomposition and at once makes a foul urine pefrectly sweet. It does not cause to disappear mucus and pus, epithelial or other debris, but prevents their fermentation, and prevents sepsis, due to this cause.

The most illustrative case in my practice in this particular, was that of a gentleman with ectrophy of the bladder. This individual suffered periodical attacks of fever, one of three months duration, more frequently of one and two months, resiting every kind of medication. The exposed wall of the bladder was covered with incrustations of urinary deposit and notwithstanding every cleanliness under the constant supervision of a trained nurse, the urinous odor of the body was offensive. Under the use of capsules of methyl blue, 2 grains every two hours, the local condition changed at once, the fever subsided in three days, and the gentleman, a merchant, returned to his business within a week. Under the continued use of the remedy in dose of at least two grains three times a day, the patient has remained well ever since, that is over a period of three months. A relapse which followed a convivial indulgence was checked within twenty-four hours by a return to the original dose. There was no irritation of the bladder in this because there was no neck of the bladder to irritate.

I have had frequent occasion to use the remedy internally

and subcutaneously in the treatment of vague neuralgic and rheumatic pains, but by no means always with the success usually reported. One case of nervous prostration following a debauch, katzenjammer, yielded in the course of a day to doses of one grain every three hours, whether *post hoc* or *propter hoc*, it was impossible to say. In ordinary neuralgic and muscular pains the remedy is not so useful as the salicylates. But there is one form of neuralgia, over which it seems to exercise sovereign control and that is the neuralgia due to malaria. It is a striking comment upon the disappearance of malaria in crowded cities, or upon the universally understood value of quinine, that well-marked examples of this disease become rarer every day. I have not had the opportunity in three monts of seeing a single case of distinctly marked chill, fever, and sweat, of malarial fever. But masked malaria abounds and especially in the form of obstinate gastralgias. These are the cases which yield much more readily to methyl blue than to quinine or arsenic. In these cases the remedy must be given in connection with the powder of nutmeg, as the large dose necessary to secure effect, produces at times intense irritation of the bladder. One striking case, that of a lady affected with periodic gastralgia at night only, and then with such severity as to prevent sleep even under the use of anodynes, yielding only to maximum doses of quinia, which produced discomfort greater than the disease, was entirely relieved by the use of methyl blue, one grain ever three hours at first, and later on three times a day.

One other case, that of a young man suffering also nocturnal pains, irradiating from the spinal cord, manifest chiefly at the right hypochondrium and epigastrium, defiant of electricity, morphia, arsenic, was not influenced in the least by the use of methyl blue. At a later examination, the case turned out to be caries of the vertebræ.

But I wish rather to speak of principles than cases, and I

may bring this report, already longer than I had anticpated, to a close with the claim that the aniline colors, on account of their innocence as well as their virtue—*primum non nocere*—have a field of usefulness already, and a promise of much more.

DISCUSSION.

DR. DUDLEY P. ALLEN:

I have used pyoktannin in malignant growths, sarcoma, carcinoma of the cheek, and in growths of the mammary glands. In one case, a growth of the mammary gland, I have heard from the patient, who says that the growth has diminished, the pain has decreased, and the patient was seemingly very much improved in her condition.

In other cases in which I have tried it there has been no benefit and no harm. But if in an occasional case pyoktannin has been a benefit we ought to try it.

DR. WHITTAKER:

Methylene blue colors the urine at once, and continues to do so for several days, but the coloring is subject to intermittence.

The stain remains in the tissues for several days. When applied to mucous menbrane you can see it disappeur. In nasal catarrh, especially after the application of the cautery, it really allays the irritation. Applied to the throat we do not have the same good result, but we see it disappear before the eye. So in the endometrium and about the vagina and uterus.

VERATRUM IN SCARLET FEVER.

BY J. C. CROSSLAND, A.M., M.D., ZANESVILLE.

The following references to acknowledged authorities will serve as a correct index of opinion of the profession generally on the value of abortive treatment in scarlet fever. J. Lewis Smith says: "In order to treat scarlet fever successfully, it is necessary to bear in mind that it is a self-limited disease running for a certain time and through certain stages, and that it is not abridged by any known treatment." Flint says: "With respect to this disease as well as other eruptive fever, it is to be premised that there are no known specific remedies by means of which it may be arrested or controlled." Busey, in Keating's "Cyclopædia of Diseases of Children," says: "Various attempts have been made to formulate a specific treatment for scarlet fever, but as yet they have proved to be of little or no value."

My object is simply to give the history of a case which seems to be at variance with the almost universal concord of the profession on this point:

I was called on February 6, 1892, at 5 o'clock in the evening, to see Dolly D., aged five years. Her symptoms were as follows: Temperature 105°F., pulse proportionately accelerated; face intensely flushed, skin dry and hot; headache, restlessness, and muscular twitching. There were well-marked rigors on the previous day. The bowels were constipated. There was nausea, and vomiting had occurred on the previous two days. The tongue bore a thin, white coating, with red borders. The tonsils were greatly swollen

and inflamed, and covered with an exudation. The soft palate was congested. My diagnosis was scarlet fever. I prescribed:

℞ Fl. ext. veratri viridi, . . ♏ xxxvi.
Kalii chloratis, . . . grs. xl.
Glycerini, ... ʒj.
Aquæ, ... ʒij. M

Sig.—Give a teaspoonful every two hours.

The first dose was given about 8 o'clock that evening. In fifteen or twenty minutes after taking the medicine, severe cramps in the stomach and bowels developed, with free vomiting. There was reduction of temperature, with perspiration and prostration. No more medicine was taken until 12 o'clock, when the prescribed dose was given, and was followed by cramps, retching and rectal tenesmus. Medicine discontinued until 7 o'clock the next morning, when the usual dose was given and followed by severe cramps, violent vomiting and purging, with cold sweating, exhaustion and great reduction of temperature. I saw the patient about 10 A. M., with symptoms about as follows: Temperature 101°F., pulse 90, and fairly strong; face pallid, skin dry; appearance of throat improved; tonsils gave appearance of having been stripped of membranous coating; and a second coating was forming; the exudation in the throat was confined to the tonsils. The eruption was beginning to appear on the chest. I prescribed:

℞ Quin. sulph, ... grs. xvj.
Tr. ferri. chloridi, ... ʒj.
Glycerin, ... ʒiv.
Syn. yerba santa, q. s., . . . ʒij. M.

Sig.—Teaspoonful every hour.

I saw the patient next at 6 P. M. Temperature 104°F.; erythema well developed; abundant exudation on throat. Gave a dose of the veratum mixture, and ordered other medicine continued. The same effects resulted as previously fol-

lowed the giving of the veratrum, viz., cramps, vomiting, purging, cold sweating and reduction of temperature. I saw the patient at 9:30 the same evening. Temperature was 100° F., pulse about normal; resting easy.

My next visit was at 10 A. M., the next day, February 8. Temperature was 100° F., throat almost free from exudation; pulse about normal; characteristic tongue; slight discharge from right ear.

February 9, improved.

February 10, sitting in the chair.

February 11, desquamation occurred, and patient going about the house feeling pretty well; appetite fair, tonsils ulcerated, and containing considerable exudation; exudation also on uvula; temperature normal, pulse slightly accelerated. The desquamation was over the entire body.

On February 13, another child of three years showed mild symptoms of the disease. A dose of oil was given; no further treatment. Child went about as usual, rash abundant, and desquamation occuring on February 17. Tonsils slightly ulcerated and coated.

A few days later the baby of eighteen months had a very mild and brief attack of the disease, but received no treatment.

Now, how shall we explain the action of the medicine first prescribed, and how explain the apparent arrest of the disease? Did an idiosyncrasy exist? I think not. To be brief, investigation showed to my satisfaction that the medicine compound contained about *two drachms* of veratrum instead of thirty-six minims as ordered. Now, the question is, did the veratrum modify the course of the disease? I think it did. I am of the opinion that the case would have proved one of moderate or unusual severity and duration had no veratrum been given, or if it had been given in the usual doses.

What do the other cases, which were so mild as to need

no treatment, argue? There is no inconsistency in these two mild cases following the one which in the beginning promised to be severe. Indeed, that the virus had been attenuated, and the infection of the patients rendered mild in consequence of the arrest of the disease, seems a plausible view. It may properly be stated in this connection that there has been a great many cases of scarlet fever in this city during the past winter and spring, but there has been no epidemic, the cases being scattered. Most of the cases have been mild, yet there have been a few deaths.

Whatever may be the *modus operandi*, it is the opinion of the writer that a few heroic doses of veratrum will marvellously modify scarlet fever, both in duration and severity.

A CASE OF ACUTE RHINITIS, WITH RETENTION OF SECRETION.

BY C. E. PERKINS, M.D., SANDUSKY.

In taking up a small portion of your time to-day, I desire to call your attention to a case which has been very interesting as well as somewhat perplexing to me, and I hope that the narration of this case may bring to your minds similar ones which you have met in your experience. And if it does I would like to ask you to narrate them for our mutual profit, as in trying to find some elucidation of this subject in text-books and articles in medical journals I have been greatly disappointed. We know that but very few cases, comparatively speaking, of acute catarrhal rhinitis are accompanied by symptoms of sufficiently severe character to lead the patient to consult a physician, but that these do occur in which the diagnosis is very difficult and the symptoms severe, I think will be shown from the following case:

Miss M. K., aged twenty-eight, unmarried, consulted me on Februaty 9, of this year. Her family, as well as personal history, was negative as to tubercular, rheumatic, and specific disease, unless we might be inclined to consider an attack of so-called measles occuring in January, 1891, as a syphilitic manifestation; but I can not do so, as some four or five other members of the family had the same trouble at that time, and all recovered without treatment of any kind. Up to the commencement of this trouble she had been exceptionally healthy and robust, having never required the services of a physician.

In the latter part of October last she was taken with what

she considered an ordinary cold. There were the ordinary symptoms of acute catarrhal rhinitis, viz., malaise, dryness and heat of the nose, followed by discharge, etc., but she had in addition to all these a severe neuralgia on the right side of the face, which persisted for about a month. Early in December complete stenosis of the right side of the nose developed and the left was partially occluded. At this time there was a swelling across the nose, frontal and nasal pains, and slight epiphora; there seemed to be very little running from the nose, and that of a watery character. About these same symptoms continued until just before Christmas, when she consulted her physician. I am quite certain that he considered the case as one of nasal syphilis, for he prescribed mercurial inunctions and insufflated iodoform daily. She continued under his care for six weeks. At one time in January she had a hoarseness for one week. The right nostril continued occluded and the left became comparatively so, although he was adopting rigorous anti-syphilitic treatment.

Not making any improvement, she consulted me on the 9th of February. I found her weak and anæmic, and somewhat emaciated. There was complete loss of appetite, and swelling, redness, and pains across the nose. These pains were so severe as to interfere with sleep. There was complete stenosis of both nasal passages, which caused the characteristic voice of nasal occlusion. This, upon inspection, appeared to be due to thickening and infiltration of the turbinated bodies and septum; they were in contact about one-fourth of an inch from the anterior nares. Having benumbed the parts with cocaine, I introduced a probe, wound with cotton, beyond this point of contact, and brought out some cheesy matter of disagreeable odor. I was unable to get a thorough view of the nasal cavities at that time, so I directed her to return on the following day. Then I found the œdematous swelling somewhat subsided and that there was a polypoid enlargement of the middle turbinated bodies which

acted as a valve to imprison the decomposing material. This I removed with the cold wire snare, and thus opened up a regular cavity on each side, from which I removed at least an ounce of foul-smelling, cheesy pus. I might add that this accumulation was above the middle turbinates, so far as I could make out.

As the parts were thus opened, and the discharge was enabled to make an exit, it gives rise, by running down into the throat, to a very distressing nausea. This I succeeded in relieving by daily removing these secretions and spraying the nares with a solution of peroxide of hydrogen (Marchand), one to four of water, and a mixture taken internally of pepsin and bismuth. I also prescribed champagne. Under this treatment the patient soon began to improve. She regained her appetite, the stenosis was relieved, fœtor stopped, and she began to gain in flesh and strength, and on the 4th of March I permitted her to go home, some ten miles, to report occasionally. She continued to improve until the 24th of March, when she returned complaining of obstruction in the right nasal cavity. Then I removed the last bit of decomposed mucus, which had become very much hardened, since which time she has remained well. I examined her on the 26th of April, and found the nasal cavities as nearly normal as we are accustomed to see them—there was no ulceration, nor was there any perforation of the septum, or anything to suggest to one that a syphilitic process had been going on.

This case has been a very perplexing one to me as far as the diagnosis is concerned. I can not regard it as syphilitic, as the effect of anti-syphilitic remedies was of no avail, but positively hurtful; and the case got well without any of the results, such as perforation of the septum, exfoliation of bone, etc., which we should expect to result from such a severe syphilitic manifestation.

I am perfectly convinced that it was a case where the patient was taken with an acute catarrhal rhinitis, and as

a result of the swelling of the mucous membrane, the discharge was retained, and becoming decomposed, gave rise to the train of symptoms occurring in the case. There might have been implication of some of the accessory sinuses, but I think there was not, to any extent, at least.

In looking over the literature of this subject, as far as I have had an opportunity, it is surprising how little is to be found. The only contribution is from the pen of Middlemass Hunt, of Liverpool, which occurs in the *Journal of Laryngology, Rhinology and Otology*, p. 1, vol. vi. There, under the head of "Serious Symptoms Arising from Retention of Nasal Discharge," he relates two cases. The first was a girl aged twenty-three, who had the trouble for a year, with complete stenosis of the right nostril. Before coming under his care the case had been diagnosed as one of malignant disease. He destroyed the folds of mucous membrane which held the secretion in the nose, and "scooped out the putty-like material." The case resulted in a cure. The second case was a widow aged forty-five. She had about the same symptoms, except that the neuralgic pains were more severe. Her medical attendant had diagnosed syphilis, and had salivated her without effect. The same foul-smelling, cheesy material was found in the nasal cavity of the right side. He adopted the same treatment, except that he snared the hypertrophied turbinated valve, as it were. In his cases, owing to the length of time the disease had persisted, the fold which had obstructed the exit of the discharge had become almost the same as granulation tissue, while in mine, from the short length of time—about five months—it was mucous membrane infiltrated with serum greatly resembling true myxoma. His cases also differed in being unilateral, whereas mine was on both sides. His conclusion is this, and I quote in his own words:

"The sequence of events in the above cases seem to be as follows: An acute nasal catarrh, extending to one of the

accessory cavities, most probably the frontal sinus, with swelling and inflammatory hypertrophy of the mucous membrane, leading to gradual occlusion of the nostril and retention of the discharge, which gradually filled the nasal cavity, becoming inspissated, and, through pressure, gave rise to pain and deformity. Disease of the antrum is excluded by the cessation of all symptoms after removal of obstruction."

I wish to say that my patient was well before I saw Dr. Hunt's article, but if I had seen it sooner it would have been a great help to me as well as a relief. And now in conclusion I wish to add that I have reported this case more because I have considered it a duty than for any other reason, and I hope it will impress upon your minds that cases do occur where there may be a foul-smelling, cheesy accumulation in the nasal cavities without syphilis or ulceration of the mucous membrane, notwithstanding what some of our best authorities on nose and throat diseases may hold in their writings.

MEDICAL PROPERTIES OF BROMO-LITHIA WATER.

BY W. A. DIXON, M.D., RIPLEY.

The late distinguished Professor C. D. Meigs, M.D., of Philadelphia, said: "Nobody knows why one medicine acts thus, and another so; it is enough to know that ipecac makes you vomit and that jalap purges you."

Experience, trial and observation of years with a remedy establish its reliability and character as a therapeutic agent. All medicines had a beginning to their use, and received general recognition only after endorsement by the writers and authors who reach the practitioner by their pens. They depend upon empirical facts founded in professional experience, as well as upon therapeutical applications based on the physiological actions of the remedies. The *why* that a remedy acts thus or so, is a metaphysical problem that the ordinary physician fails to undertake to solve, choosing rather to leave the task to the untiring professor who submits each to strict physiological tests, and sifts over the empirical facts until its precise action and use are definitely determined. The teachers and authors are not slow to consider facts as to any remedial agent, and give them due consideration.

This is my apology for inviting your attention to the medical properties of a mineral water as yet not well known to medical men. The Bromo-Lithia Spring is located at Ripley, Brown County, Ohio, on the Ohio River, about fifty miles above Cincinnati. It was discovered in 1888,

while drilling into the deep rocks in search of natural gas. The drillers, instead of gas, found this water, at the depth of 615 feet. They were experienced drillers, familiar with the deep rocks of New York, Pennsylvania and the gas fields of Ohio, and their products. They were interested in the unusual find, a peculiar water in so dense a rock, that flowed out at the surface and rose in a pipe eighty-three feet higher; we do not know how much higher it might rise, being unable to further extend the pipe.

For some time no value was attached to it as mineral water possessing medical properties, and no effort was made to ascertain its composition. Circumstances like the following brought it to notice:

Mr. L., aged about fifty-five years, lived near by the spring. He had been an invalid from chronic articular rheumatism for more than ten years. His joints were swollen, tender, and stiffened so that he walked but little, and with the greatest difficulty and pain. His general health suffered greatly, and he had no prospect of getting better. Remembering the mineral springs of his native country, Germany, he ventured to try the water. To the great surprise and delight of himself and friends he rapidly improved. The swelling, soreness and stiffness subsided. The man, who had for more than ten years been missed from the street, and had resigned himself to the apparently certain issue, death, was seen again upon the street, gaining in flesh and strength, no longer stiff and limping, but returned to his former vigor.

This wonderful circumstance spread greatly, and hundreds suffering from rheumatism repaired to the water for relief; and were it practicable to relate their experience it would seem more like a fairy tale than truth.

A lady, Mrs. W., aged about forty-six, was ill from Bright's disease. Her condition was critical. She had œdema of the lower extremities, ascites, effusion within the thorax, and a large per cent of albumen in the urine. Her

physician, Dr. J. C. Winters, despairing of her recovery, advised the use of the water, and watched its effects daily. The urgent symptoms of dyspnœa and uremic poisoning modified quickly, the flow of urine increased, the albumen diminished, the effusions were gradually taken up, and recovery established with the help of no other remedy. She remains in good health to the present.

The news of this case led a large number affected with kidney and vesical troubles to try the water.

The results observed prove the water palliative in a large number of cases, and curative in a sufficient number to win the respect and confidence of physicians.

Mr. J., aged about sixty, had diabetes mellitus well pronounced. The specific gravity of his urine was 1034 and upwards. Repeated tests showed the presence of sugar. He had besides all the concurrent symptoms. He drank the water and obtained such relief that he told the story of recovery everywhere, and led many more to use it advantageously.

We now felt warranted in having the water analyzed to discover what ingredients it contained that would produce the results above related. A specimen was furnished to Prof. Charles T. P. Fennel, of Cincinnati, a chemist well known to the profession, who made a quantitative analysis, and reported the presence of calcium and magnesium sulphates, calcium, magnesium, potassium and sodium chlorides, calcium, magnesium and lithium carbonates, sulphuretted hydrogen and free carbonic acid gas, in large quantities. The amount of lithium carbonate was 8 $^{8}/_{10}$ grs. to the U. S. gallon. The quantity of carbonate of lithium being extraordinary, and associated with the other valuable medicinal constituents, brought the water to the notice of physicians of prominence and many people familiar with mineral waters and their composition. The more it was observed, the more it became apparent that its behavior was exceedingly peculiar, and unlike any other known American water. When fresh

it is perfectly transparent, colorless and sparkling. Its taste is saline, slightly alkaline bitterish, leaving an agreeable farewell. Because of the gaseous constituents the water is markedly exhilarating. When bottled it remains unchanged so long as the bottle is corked. On exposure to the air it becomes quite yellow, then gradually whitish and turbid in appearance, and finally clear as crystal. When put in barrels it requires a long time for this process to complete. This peculiar action of the water seemed to settle its fate. No one seemed able to understand its changes, and being utterly unlike all other waters handled by the druggist, he could not venture to explain its action.

At this time no thought was extertained of the water forcing itself into recognition as a medicinal agent of recognized value. Reports were being daily received from physicians and others attesting its worth in rheumatism, gout, derangements of the kidney and diseases of the bladder, its power to dissolve renal calculus, and its beneficial effects in chronic syphilitic and all lithæmic conditions.

These reports led us to suspect that this very extraordinary chemical conduct of the water was the key to its wonderful medicinal action, and stimulated further search into its chemical character.

Prominent physicians who had prescribed the waters were well pleased with the certainty of its action, but could not understand its chemical deportment. Dr. George E. Walton, author of "Mineral Springs of United States and Canada," and well informed upon all mineral waters, after investigation, wrote: "The water reveals peculiar and extraordinary properties such as I have never met with before. These properties are not met with elsewhere in this country. Two or three springs similar are noted in Europe — Enghoem and Cadeac, France. I do not doubt that this water will prove applicable to a wide range of diseases. You may be assured the water is one which should not be neglected."

It was suggested that Prof. Karl Langenbeck, Professor of Chemistry in Miami Medical College, would be able to unravel the chemical action. He began its analysis in February, 1889, and worked upon it until May 15, following. In response to inquiries as to the difficulties and delays in the work, he replied, "that the work was very puzzling, and that he was reminded that the water bore a close comparison with that of Stachelberg, in Switzerland." The Stachelberg Spring was first described in J. J. Schenchzer's "Hydrographica Helvetica," which was published in 1717; the spring has been known as a medical water for certainly two hundred years. In 1812 it was the subject of a special brochure by Dr. Johann Martin, of Glarus, who pointed out its peculiarities, which tempted Prof. C. F. Kielmeyer, of the University of Tübingen, to attempt its analysis and explain its properties from the chemical characters found, and as they were then understood.

In 1834, Dr. Theodore Simmler, then an instructor in the Polytechnic School at Zurich, saw that the great discoveries in chemistry, made since the date of Kielmeyer's celebrated effort, had not been applied to the analysis of the alkaline hepatic waters, the character of which was not understood in spite of Kielmeyer's work in the light of advanced chemical knowledge. He therefore undertook a new analysis of the Stachelberg Spring, and the methods devised by him in this very puzzling work have held good in the examination of this class of waters to the present day. Working in the Zurich labaratory myself during the year 1882, I became familiar with Simmler's work and the Stachelberg water, as the resort is in the valley of the Linth in Canton Glarus, not far distant from Zurich, and popular with the Zurich people. Medical experience with it entends over so long a period, and it has played so important a part in stimulating advance in the chemical analysis of complicated waters, that it is well known to chemists who are familiar with the history of

this subject; and it should be known to physicians generally, that a similar water can be obtained in abundance which falls heir to the extensive experience that has been made with it. The resemblance lies chiefly in the alkalinity, the character of the sulphur compounds, their change from sulphides to sulphates on exposure to air, the presence of monosulphides, hydrosulphides, and polysulphides along with the normal sulphides, and the presence of a large amount of lithium, to which, in a large measure, its medicinal value must be ascribed, and which the Ripley water shares with it. The difference lies in the small amount of sulphates in its fresh state and the presence of the bromine in the Ripley water. Each wine-pint contains:

Silica,	0.2030 grains.
Alumina,	0.0085 "
Ferrous sulphide,	0.0052 "
Ammonium sulphide,	0.0775 "
Calcium sulphide,	1.8633 "
Magnesium sulphide,	2.4089 "
Calcium hydrosulphide,	0.3230 "
Calcium sulphate,	0.1825 "
Magnesium bromide,	0.0657 "
Sodium chloride,	66.3453 "
Potassium chloride,	2.8980 "
Lithium carbonate,	1.1050 "
Free sulphuretted hydrogen,	4.35 cub. inches.
Carbonic acid gas,	8.07 " "

The quantity of lithium carbonate is the same in each analysis—$8\,^{8}/_{10}$ grains to the gallon.

Prof. Dr. Roberts Bartholow, of Philadelphia, took a case in bottles and a barrel of the water for trial. He wrote "that he was much pleased with the results of its use; that it acted efficiently in uric acid diathesis by forming chemically the urate of lithia, which is easily excreted in the urine." He also gave great credit to the numerous sulphur compounds held in the water in the form of the normal sulphides, the monosulphides, the hydrosulphides and the

polysulphides changing into sulphates, and believed "the chemical action, as observed, continued during the ingestion, therefore exerting alternative and reconstructive changes that favorably modified morbid processes in the liver, kidneys, and glands of the stomach and bowels, rendering it a most valuable medicinal agent." Before he completed his investigations he became ill, and we were deprived of an authentic report from him.

By this time many reports from physicians prominent in the profession were received concurring in Professor Bartholow's observations and establishing that in lithæmic conditions where the tissues are in a state of irritation from the retention of excrementitious matter, where fugitive pains, irritable temper, loss of appetite, and insomnia are present, and the urine full of urates, the action of the lithia in the water changes the condition, and where the salicylates, and so on, failed to ease the pains, opiates, choral, etc., failed to bring sleep, and where pulmonary troubles, paretic dementia, and heart failure seemed imminent, and no improvement made under the use of means hitherto employed, the water, by its chemical action in uniting with the urea, renders it perfectly soluble and easily carried off in the urine, thereby affording relief and affecting a cure. Numerous reports of cases of this kind sustain the theory of its chemical and physiological action as a solvent and eliminant of urea, the presence of which is the cause of so many obscure, chronic, and painful affections.

The last and probably most important medical property of this water to which your attention is called is its action in dissolving renal caculi. This property is attested by reports of many cases, a few of which only I will here mention:

CASE I.

Dr. J. O. Jenkins, of Newyort, Ky., reported a case in the LANCET-CLINIC of December 6, 1890, who, after using the water some time, passed at one sitting five ounces of

sand. Some months afterwards, at one sitting, three and one-half ounces of sand, and smaller amounts at other and frequent times. The Doctor believed "that the action of the water was, that the outer layer of a large calculus in the kidney (for the stone was not in the bladder) was dissolved, and the internal and harder as well as older portion would require the continuance of its use to break it up." The Doctor afterward reported "continued improvement in the case, with unwavering faith in the water."

CASE II.

Mr. W. B. T., of Portsmouth, O., complained of uneasy sensations referable to the urinary organs. He had no intimation of the cause. From curiosity, perhaps, he drank of the water. After a few days' use he was seized with severe renal colic, which was relieved only by hypodermic use of morphia. He continued the use of the water and was the second time the victim of renal pain. This time his physician accused the water of the mischief, and condemned its further use. In a few days more a third attack supervened. A calculus reached the bladder, entered the urethra and was removed. The water had got in its work, settled the diagnosis, and gave relief not experienced for a long time previously.

CASE III.

Mr. F., aged sixty, a patient of Dr. J. C. Winters, of Ripley, suffered from an irritable state of the urinary organs. No suspicion of renal calculus was entertained. He drank the water, and it was not long until the doctor was called to remove a large calculus engaged in the urethra. Recovery seems to be complete.

CASE IV.

Capt. K., of the Big Sandy Packet Co., drank the water on account of vague abdominal pains and urinary discomfort. In a short time he was seized with violent renal colic, which he never had before. His physician accused the guilty water, and advised its discontinuance. But the water had

already begun the solution of the calculus, which was reduced to a size that would permit its entrance into the ureter and exit by the urethra. His relief after the passage of a large stone was perfect.

CASE V.

Mr. H., of Flora, Ill., was advised by his physician, Dr. E. B. Elrod, to drink the water for an obscure affection referable to the kidneys. He came to the spring and drank of the water probably ten days, when he was seized with most violent renal colic. In a few hours he passed several drams of sand, and for several months continued to pass this débris. He was advised finally to cease using the water or it would kill him. He afterward returned to the spring to use the water, realizing what it had done for him. He remains free from renal pain to the present.

These are but a sample of a large number of reports of like character received. We summarize from observation, trial, and a large number of reports, the following: That the water is not a table water, but medicinal. It is not pleasant to the taste, yet many become fond of it by use. It renders the bowels soluble, but it is not a cathartic. It does not act violently upon the kidneys as to set up nephritis. It is a solvent of urea and of the various morbid deposits from the urine. It is a bile solvent, and acts well in hepatic affections, especially cirrhosis. It is an eliminant and reconstructant. It is an antizymotic, antiseptic, antituberculous agent of no mean value, because of its calcium sulphides and other sulphide and sulphur compounds. Some mineral waters act as distilled water only, by holding in solution no agent whatever. They must be used in large, drenching, flushing and flooding quantities to take up the salts and wash them out. This water acts chemically, physiologically, uniformly, invariably and infallibly, in the direction of the modus operandi of its composite ingredients, requiring no flooding,

no sewerage process, nor taxing the kidneys to diseased tension to produce appreciable results. It never spoils, nor loses its medical properties. The bromide and lithium remain constant.

As "ipecac vomits and jalap purges," so bromo-lithia water excretes urea, dissolves renal calculus, arrests excretion of albumen and dries up the mysterious, sweet fountain of diabetic urine.

DISCUSSION.

DR. J. T. WHITTAKER:

There are always two sides to every question. Quinine does not cure every case of malaria or mercury every case of the pox. I would like very much to hear of one case in which this remedy failed. It would carry more weight with the majority of us, I think, if it had not been so absolutely faultless. In order to carry the most convincing proof of its power to dissolve all kinds of kidney stone it ought to be able to do it outside of the body. No kind of lithia water has been able to do this and it is hard to understand how this agent could have such power inside of the body when it does not do it outside. We may believe that these stones were removed, but why could they not have been removed by a simple flushing process? Who has not made the observation that the ingestion of large quantities of water will remove stone by a simple mechanical process? The waters of any watering place where quantities are ingested will often flush out stones. A water that will dissolve phosphates as well as urates is pretty near a universal solvent, and a man might like to know in what kind of a vessel such a solvent could be kept. Will it dissolve bones?

What makes this particular contribution so valuable to us in this case is the endorsement of the author. In most cases these waters have been recommended to us in such a way as to appear like certificates for some patent medicine. Here is a case in which the author, as in these certificates, has not seen a single failure; but this author is a reputable physician, and we may have more faith in their value. Ordinarily the mineral waters of our country are disgracefully mixed up with the trade element.

DR. B. H. BLAIR, Lebanon:

I want to add one case. Two years ago I was called to

see a case of nephritis in a gentleman about thirty years old. He had been troubled with the disease for some time previous to this. I treated him with the usual remedies for two months. At that time he was taken with severe chills, followed by very high temperature. The chills were repeated from time to time for several days—probably one or two chills a day. Following the chills and fever, pus developed in the urine in large amount, and had never entirely disappeared although the amount was much smaller through the summer. He was able to do a little work, very little. When cold weather came on again the same trouble was repeated, with increased fever. It kept up during that winter, 1890–91, and the pus in the urine increased during the winter and diminished again in the spring, and this was repeated again this last winter. I resolved to give Bromo-Lithia water a trial. A wine-glass full three times a day was administered before meals. In about a month from the time I commenced giving it the pus began to decrease in quantity, and the water was continued until the pus almost entirely ceased to appear in the urine. At this time an abscess of the prostate gland developed, which I opened, and it discharged very freely. I treated that in the usual manner. The man now is entirely well; there is neither pus nor albumen in the urine.

SOME POINTS IN THE SYMPTOMATOLOGY OF GENERAL PARALYSIS OF THE INSANE.

BY PHILIP ZENNER, A.M., M.D., CINCINNATI.

General paralysis assumes its great importance, not only from its comparative frequency, but also on account of the class of individuals it attacks. Its victims are usually the stalwarts of the community, able-bodied, hard-working, intelligent men, those who, from their zeal and energy, have acquired a place and influence over their fellows. This fact already tells us an important etiological factor in the production of the disease—work and worry—elements which play the greatest rôle in the lives of the greatest workers. That this is a very important cause is beyond doubt; that other causes may also be at work is almost equally certain. Of late years the impression is growing that syphilis is an important etiological factor. The facts that the disease occurs chiefly in men, and in adult life—most commonly between forty and fifty years of age—and that a previous history of syphilis can be obtained in many cases—according to some observers in 75 per cent. or more—are the basis of this belief. It thus becomes apparent that the belief is based upon the same order of facts as that of the etiological relationship of locomotor ataxia and syphilis. The two diseases are alike in other things. The one is the most common organic disease of the spinal cord, the other the most common organic disease of the brain. The pathological changes of locomotor ataxia, sclerosis of the posterior columns, are found in many cases of general paralysis—in 66 per cent. of cases, according to

Thomson (*Neurolog. Centralblatt*, 1890, p. 220), and much more rarely, general paralysis develops in cases of locomotor ataxia. Also, the relationship of syphilis to general paralysis, as is true of locomotor ataxia, must be an indirect one. The lesions found are not syphilitic in character, and anti-syphilitic treatment seems more frequently to do harm than good. Just in what manner the syphilitic poison acts, whether it produces ptomaines which specially affect nervous tissues, or merely weakens the nervous system and renders it more susceptible to disease, or acts in some other way, we do not know. In most cases the nervous disease appears ten years or more after the primary infection.

Whatever be the relationship of syphilis to the disease, it is probable that some additional cause is always necessary. The disease rarely occurs in the colored race, though syphilis is common. It is found most frequently in the countries with highest civilization. We can not go far amiss in the statement that a great taxing of the intellectual powers is, as a rule, the exciting cause, and that this cause is more effective where syphilis has lessened the resisting power of the nervous system.

General paralysis is, essentially, a disease of the anterior part of the brain, that part possessing motor functions, and, at the same time, most intimately related to the intellectual powers. Meynert carefully weighed different portions of the brain in advanced cases, and always found the greatest amount of atrophy in the anterior half of the hemispheres. Nevertheless, pathological changes take place in other or all parts of the brain, as well as in other parts of the nervous system, and thus accounts for the manifold symptoms sometimes presented.

I wish, in this paper, to speak chiefly of the early symptoms, and of our aids to diagnosis at this period. The early recognition of the disease is of highest consequence, for it may avert financial or worse calamities, and it is only then,

if ever, that anything can be hoped from therapeutical measures. But I will first give a brief outline of the disease as ordinarily presented.

The symptoms are mainly of a mental or motor character. There is a progressive failure of mental powers, first of the powers of attention and mental concentration, then of judgment, memory, will-power, and of the affections and emotions, this failure being attended by the presence of delusions, most commonly the delirium of grandeur. At the same time the motor phenomena become manifest; first, tremor of the lips and tongue, then paresis of facial muscles and some difficulties of speech. The latter is a sort of stumbling articulation; syllables are not enunciated distinctly, run into one another, or are left out altogether. The peculiarity of these paralyses is that they are only partial—do not become complete, because they are of cortical origin. But other paralytic manifestations more decided in character often appear. These are, the paraplegia, or spastic or ataxic gait, due to changes in the spinal cord.

The disease has an average duration of three years. Usually there is a gradual progress from bad to worse, though periods of improvement, which may give rise to false hopes and bitter disappointment, sometimes occur. The course of the disease is, also, not infrequently complicated by periods of maniacal excitement and paroxysmal seizures of an apoplectic or epileptic character.

The earliest symptoms are mental ones, and come on so insidiously that they are scarcely recognized at the time, though they may be afterwards recalled. First there is a falling off in the power of attention, of concentration of mind, of mental vigor and endurance, and with these, of niceness of discrimination and judgment, as well as quickness of comprehension. If these changes are not observed in the ordinary routine of daily life, they become apparent when high demands are made upon the intellect, when new under-

takings call for special or original thought, etc. The memory, also, begins to fail. This is, at first, true only of recent occurrences, the events of the day, etc., while old recollections remain long unimpaired. One frequently observes, after the disease has made some progress, that in a conversation revealing a remarkable recollection of incidents in times long past, the same statements may be unwittingly repeated more than once, thus bringing into striking contrast the forgetfulness of the present and recollection of the past.

With these changes in purely intellectual qualities, attention, judgment, and understanding, there will be found changes in the affective life. The patient takes less interest in his business and other relations. His affections are less strong; illness or death in his family affect him less than formerly. At the same time he appears in some respects more emotional; he becomes more irritable, laughs or cries easily, though these emotions are far less deep than would be normal to him. He gradually becomes careless in personal and business methods, indifferent in his own affairs, regardless of the feelings of others, and may manifest a tendency to indecent words or actions.

Such changes, especially whilst slightly marked, may escape attention a long time, or, at least, not be supposed to have any pathological significance. Even if the patient falls into the hands of a physician, and the suspicions of the latter be aroused, he may fail to obtain any history of mental symptoms, and it may require long and patient observation on his own part to detect such manifestations. But while these early mental symptoms so easily elude observation, or when observed may be difficult to interpret, fortunately for the diagnosis, certain objective symptoms are usually manifested at the same time, which, when related to the mental condition, have a high diagnostic import. These symptoms are inequality of the pupils, tremor of the lips and tongue, slight facial paralysis, and slight speech disturbances. But these

symptoms, also, may be so slightly marked that they must be carefully sought, if not to be overlooked.

As before stated, maniacal periods often occur in the course of the disease. If such a state occurs early, before the disease has yet been recognized, it is said to usher in the disease. Errors of this kind are not infrequent. The following case is an instance of this kind:

Mr. B., aged thirty four, merchant, was seen in consultation August, 1890. There was no history of nervous disease in the family. The patient had been a robust, hard-working man, mostly in very good health. There was no history nor indications of former syphilitic infection, but he sometimes indulged too freely in alcoholic drinks.

Two months before I saw him, while on a business trip, he was seized with an attack of acute mania, which passed away in about two weeks, but left him in an altered condition. He was steadily improving at the time I first saw him. At that time his mind seemed quite lucid; he gave a clear account of himself, and there was no trace of delusions. The only change in his mental condition spoken of was impairment of memory, and that only for recent occurrences. But some objective symptoms were found, so slight as only to be detected by careful examination, which seemed to have a sinister significance. These symptoms were: a slight inequality of the pupils, the left somewhat larger than the right, and sluggish in its response to light, a slight tremor in the speech, and somewhat uncertain gait, that is, sometimes something abnormal could be detected in it, not to be clearly defined. These symptoms, especially the condition of the pupils, led me to express a fear that general paralysis was developing. The presence of this disease was made manifest within a few months by more decided disturbances of speech and gait, as well as transient paralytic attacks, great impairment of memory, mental confusion, the delirium of grandeur, etc.

When I first saw this patient I was told that the previous maniacal attack was the commencement of his illness, that nothing abnormal had been observed before. Long afterwards, when the mental disease was pronounced, and the patient sent to an asylum, both the members of his family and his business partners could recall certain mental peculiarities, such as crying easily, the expression of a peculiar idea, occasional display of unusually poor business judgment, etc., manifested for months before the maniacal outbreak. These were supposed at the time to be incidental occurrences, to have no pathological significance, and, therefore, were not even thought of when we were trying to take the history of his disease.

I have seen a number of cases in which the disease was supposed to have begun abruptly, as a sort of explosion, in which a careful investigation revealed a prior change, a slow, insidious beginning. I dwell specially upon this point, to emphasize the importance of looking for early symptoms. In the case above reported it was the ocular symptoms, the condition of the pupils, which directed my attention to the true condition. Ocular symptoms are of such high diagnostic import, and so frequently found at an early stage of the disease, that they should always be sought for. The most common of these is inequality in the size of the pupils. Also, very commonly one or both pupils respond to light very sluggishly or not at all. In some instances there is what is termed spinal myosis: the pupils are quite small, do not respond to light, but become smaller on convergence of the eyes. Some years ago, in a paper read before the American Medical Association, I called attention to the importance of this symptom, in conjunction with loss of the knee-jerk, in helping to a diagnosis of general paralysis. The paper was based upon the examination of a large number of cases, and it was found that this combination of symptoms was found in a large pro-

portion of the cases of general paralysis, and in very few of the other forms of insanity.

I must again emphasize the importance of seeking objective symptoms in cases where suspicious mental symptoms are found.

INTESTINAL INFECTION IN TUBERCULOSIS.

BY S. P. KRAMER, M.D., CINCINNATI.

In the light of our present knowledge, following the teachings of Koch and Cornet, the inhalation of the inspissated sputum of phthisical persons may be regarded as the greatest source of infection in tubercular diseases. The importance, however, of infection by the alimentary tract is not to be underrated. The upper half of the digestive tract (mouth, throat, œsophagus, stomach, duodenum, jejunum) offers an unfavorable soil for the tubercle bacillus. The lymph follicles of the ileum and large intestine are the organs usually infected when the disease has its origin in the intestinal tract.

The very large mortality from tuberculosis in young children, ranging from 20 to 40 per cent. of all deaths, and the fact that in a very large proportion of these cases the disease is of intestinal origin, has very forcibly drawn our attention to cow's milk as a possible source of infection. Koch, in his work on the etiology of tuberculosis, alludes to this source of infection, and says: "If infection is to take place [from this source], it is necessary that the milk contain tubercle bacilli, but this appears to be the case only when the milk glands themselves are affected with the disease." The experiments along this line have been such that there can now be no doubt but what the milk of cows, whose udders are affected, is highly infectious. Large numbers of bacilli are often found in such milk, and, inoculated upon guinea-pigs, it produces well-marked tubercular disease.

On the question as to whether the milk contains the virus in those cases where tuberculosis exists, but where the milk glands are healthy, there are great differences of opinion. According to Bollinger, milk of tuberculous cows with apparently normal udders has in 55 per cent. of the experiments conveyed the disease when inoculation experiments were made with the milk upon the lower animals. This percentage is probably very high. Bang, of Copenhagen, reports the results of his experiments with the milk of twenty-one highly tuberculous cows whose udders were apparently healthy. He found the milk of four of these animals produced the disease when injected into the peritoneal cavity of guinea-pigs. On microscopical examination of the milk glands of these animals he found incipient tubercular disease in three of the four cases. Thus we cannot always be sure from a macroscopic inspection that the milk glands are not infected with the disease. Ernst, of Boston, in a similar investigation, obtained seven positive results from the milk of fourteen cows with apparently healthy udders.

Inoculation experiments with the flesh of tubercular cows, more especially when the disease has become very far advanced and generalized, have given positive results. This, however, is a lesser source of danger, for two reasons—the one that the muscular tissue does not offer a favorable soil for the development of the bacillus, and secondly, because of the heat employed in the preparation of meats.

Galtier has found that the fluid obtained from tuberculous animals may contain the bacillus, but that in the majority of cases inoculation upon animals failed to produce the disease.

Perroncita inoculated two hundred rabbits, as many guinea-pigs, and two oxen with the fluid obtained from the muscles of tuberculous pigs. None of these animals became tuberculous. Eighteen young pigs were fed for a period of four months with the flesh of tuberculous cows; on post-mortem examinations of these animals thus fed no tubercular

lesions were found. On the whole, then, there seems to be but comparatively little danger in this direction.

Ollivier reports a very convincing experience, illustrating the danger of infection from milk. At a girls' school at Chartres, France, there occurred within three months eleven cases of tuberculosis, of which five were fatal, and with most of them the site of infection was evidently intestinal. Two other pupils of this same school died of tubercular disease in whom the family history and previous state of excellent health warranted the statement that they would otherwise not have been infected. On investigating the cause of this frightful occurrence, it was found that during this period the school had obtained its milk-supply from a cow which had shown on post-mortem examination advanced tuberculosis of the lungs and peritonitis, and more especially of the milk glands.

The question of importance to us is, How shall we detect the presence of the bacillus in milk? Detection by microscopical examination very often requires repeated and patient efforts, and it would seem that the bacilli would not be detected unless present in large numbers. That such an examination is, however, attended with results, has been proven. Thus Ernst found the bacillus in 31.5 per cent. of the cases where the milk of tuberculous cows was examined. Drs. Freeman and Oliver were also able to demonstrate large numbers of tubercle bacilli in the milk of animals in advanced stages of this disease.

The plan I should recommend would be the following: The milk is to be poured into a large test-tube, care being taken to avoid all sources of contamination. The milk is acidulated with a few drops of dydrochloric acid and heated for from three to five minutes in a water-bath. This will precipitate the proteids present and facilitate their falling to the bottom. In settling the sediment carries down with it any tubercle bacilli which may be present. The milk is

allowed to stand until the sediment has fallen to the bottom; the supernatent fluid is to be drawn off, and the sediment collected and thoroughly rubbed up in order to diffuse any bacilli which may be present. Any of the staining methods may be used for their demonstration. More positive results, however, are of course obtained by the intra-peritoneal inoculation of guinea-pigs.

We have in Koch's tuberculin a very valuable diagnostic agent for determining whether tuberculosis exists in given cattle. Experiments have been carried on in this direction by various investigators with considerable success.

Bang injected fifty-three animals, in forty-one of which the post-mortem examination disclosed tuberculous disease. Of these forty-one, thirty-eight gave a typical reaction; in three the reaction was insufficient. Of twelve healthy animals, two gave a very insignificant reaction.

Johne and Siedamgrotzki obtained similar results.

Lydtin injected eighty animals selected at random. Of these eighteen showed reaction, of which seventeen were found tuberculous. Of the remaining sixty-two, where no reaction had occurred, none were found tuberculous. In another series, nineteen strong, apparently healthy milk-cows were injected. Of these, nine showed the reaction, and were found on post-morten examination to be tuberculous.

Roeckl and Schütz injected sixty animals, with a positive result in fifty-one. Of these, forty-three were found to be tuberculous. Of fifteen animals with a negative result, four were found with evidence of the disease.

Nocard experimented upon seventy-one animals, all of them being subsequently examined post-mortem. Of these, twenty-two showed the reaction; examination revealed tuberculosis in twenty-one, and in the other animals a general lymphandenitis was found. Of the remaining forty-nine animals, where no reaction took place, three were tuber-

culous. Of eighteen milk-cows, two reacted and were found tuberculous.

So that, while this diagnostic agent is not infallible, it is yet of very great value indeed, especially in doubtful cases. The method employed by Nocard was the following: Thirty to forty centigrammes of tuberculin are to be injected. As a rule, in tuberculous animals, a rise of temperature of from 1° to 3° C. occurs in from nine to eighteen hours after the injection; the rule is in from twelve to fifteen hours. In healthy animals this does not occur. Further, that a rise of 0.8° C. does not establish the diagnosis; with a rise of 0.8° to 1.4° C. tuberculosis should be suspected. A higher temperature establishes the diagnosis.

And now as to the question of prophylaxis. How shall we prevent infection of the human species from the ingestion of milk from tuberculous cows? In the first place, it has been found that the dilution of tuberculous milk with healthy milk greatly lessens the danger of communicating the disease, so that, so far as this disease is concerned, there is less danger from the use of the mixed supply of the dairies than from the milk of a single cow under like conditions of hygiene, etc. So far as milk is concerned, the question of prevention is absolutely settled by previous boiling; but many people will not use boiled milk, and it is still an open question as to whether the nutritive qualities of milk are not lessened by boiling. Moreover, for the products of milk, such as butter, cheese, etc., it is not applicable. It then becomes a question of dairy inspection, and it is in this direction that the beneficent results from these investigations are to be obtained.

The following suggestions have been published, the observance of which would be productive of much good. A regular staff of veterinary inspectors, well-trained for such work, should be appointed, whose duty it should be to examinine fortnightly all cattle furnishing milk-supply.

These inspectors should have the power to isolate all cattle in which the presence of tuberculosis or perlsucht is suspected. It should be made penal for any dairyman to throw into his milk-supply the milk of cattle thus isolated. Moreover, no phthisical person should have charge of any department in a dairy. That the practice of many of our city dairies, of crowding large numbers of cattle in filthy, badly-ventilated pens, is a great source of evil, there can be no doubt. At the same time care should be taken that the source of private milk-supplies be not infected, the more especially since such milk is not diluted.

THE USE OF THE GALVANO-CAUTERY IN OPHTHALMIC AND LARYNGEAL SURGERY.

BY ROBERT D. GIBSON, M.D., YOUNGSTOWN.

There is no agent at our command which is so positive in its results on diseased surfaces as the actual cautery, yet up to the present time the thermo-cautery is either still wanting or only a recent acquisition to the armamentarium of the majority of surgeons.

By the term galvano-cautery we mean the actual cautery, or, more properly speaking, the thermo-cautery, which has for its source of heat a current of electricity generated by chemical action in galvanic cells. To date, there has been no distinction made by writers between the galvano-cautery and the electro-cautery, which latter is derived from the electro-magnetic current of the street-wires.

In ophthalmic and laryngeal surgery we have to deal with parts where the loss of tissue, either by ulceration or operative interference, leaves a blemish which can not be concealed. Therefore, any disease of these organs which threatens any loss of tissue should be treated early, and by positive and exact means. Growths should be removed as soon as discovered, and ulcerations carefully, but thoroughly cauterized.

Small laryngeal growths may be removed by means of suitable forceps, but to prevent recurrence the stump should be cauterized. For this purpose the galvano-cautery is superior to all others, because its action is sure, and confined

to the exact point treated, which cannot be claimed for nitrate of silver, chromic acid, etc.

Large laryngeal growths should be removed by means of the galvano-cautery snare, because there is less danger of injuring the healthy parts. The stump is cauterized at the same time the growth is removed, and there is no loss of blood.

With a well-trained throat to operate on, and everything in perfect working order, it is often impossible to reach the exact point desired, or to pass a loop over a tumor and get it properly adjusted, without a considerable loss of time; therefore it is desirable to have the current under the absolute control of the operator, without deviation from the exact strength of current desired. This cannot be obtained with a dip battery; either the street current or a storage battery must be the current used.

In cities where there is a suitable street or incandescent light current accessible, batteries are no longer needed for office use, for by means of a rheostat, or current controller, the current may be controlled perfectly for cautery and snare work. The only advantage the street current has over the storage battery is that it is always ready for use without the care of charging.

The storage battery requires some care on the part of the surgeon to know that it is charged and ready for use. It is a great improvement on the dip battery. It is neat, cleanly, and with a little care is always ready for use. These batteries are made of various sizes to meet the demands of the services expected of them. A one-cell storage battery is all that is required for ophthalmic and laryngeal surgery.

The style of handle is of considerable importance. It must be constructed in such a manner that the current can be turned on without any perceptible movement of the hand. The Scheck handle is the only one that meets this requirement. The thumb and middle finger, assisted by the index

finger on the sliding ring, hold the instrument in perfect control, while the circuit is made by a gentle pressure of the third or ring finger, and is immediately broken upon removing the pressure.

Some handles are provided with a sliding contact, but they require too much motion of the hand to meet with favor for delicate work.

The loop for laryngeal work should be of very fine wire, so that the resistance in tightening the loop may be reduced to a minimum.

The throat should be thoroughly cocainized, a 4 per cent. solution should be used to spray the pharynx, and a 20 per cent. solution used in the larynx. These applications should be made about every three minutes for three or four applications, or till sufficiently anæsthetized to permit of considerable manipulation. The patient should be instructed not to swallow any of the saliva.

The handle and electrode for use on the cornea should be very short, so that the hand of the operator may come close to the eye. For, with a long instrument it is difficult to touch the exact point desired and not touch anything else. The value of the actual cautery in ulcerations of the cornea can scarcely be overestimated. If properly used, the cauterization need not extend beyond the border of the ulcer to any perceptible degree, and, in place of an infected ulcer to deal with, we have a sterilized healthy surface which rarely refuses to heal promply, if treated with strict antiseptic precautions. The cicatrix will always be perceptible, but not more so than would that of the ulcer be if arrested by some other means. All other means generally fail, whereas the cautery rarely fails. Therefore we have to choose between an uncertainty and a comparative certainty. If the resulting opacity be central it can be overcome by an iridectomy at some favorable point.

In cases requiring paracentesis of the cornea, the cautery

presents certain claims over the needle: (1) there is less danger of infection, and (2) the opening does not heal so readily, permitting a longer period of drainage. This latter claim would indicate that it might be used to advantage in some cases of glaucoma. I do not know of it having been tried.

The writer has treated keratoconus by performing paracentesis of the cornea with the galvano-cautery needle, and obtained very encouraging results. In one case where the vision was reduced to perception of light, the vision was increased to $^{20}/_{50}$, and in another case, in which the vision was reduced to $^{4}/_{200}$, the vision was increased to $^{20}/_{50}$.

DISCUSSION.

DR. DAVID DEBECK:

I think it hardly fair to leave so important a paper as this without comment.

Of the common diseases of the eye probably none so frequently occur, and none are so lamentable in their results as ulcers of the cornea. You find them usually of an infectious character, the infectious material carried in. If the lamellæ of the cornea itself are permeated with these organisms, the best we can hope for is healing with a dense opacity. The use of the galvano-cautery, heated white hot, is the very best procedure we have. The eschar that is formed soon drops off, and an aseptic surface is left which enables the epithelial proliferation to cover over the surface, and very frequently there is hardly an opacity left. The only objection to the galvano-cautery in general use is that few have it, and the urgency of these cases is such that (while we regard this as the very best method), we must frequently resort to some other. These cases are particularly common in stone breakers and farm laborers, and come into the care of the general practitioner.

Where the battery is not at hand, and where the urgent nature of the trouble requires an immediate operation of some ort, our plan has been to use a 5 per cent. solution of cocaine for local anesthesia; then thoroughly scrape the ulcer with a fine flat or gouge-shaped spud; and then apply a strong solution of bichloride of mercury, 1 in 250, (gr.j—℥ss). A drop of this is taken up by a fine probe or upon a round

end of a match, and this little amount thoroughly rubbed in. The reaction from this is not very severe; and leaving out of question the operation with the cautery there is probably no means that we can employ in these ulcers that is as ready, and except the cautery none is so successful.

THE RELATION BETWEEN ERRORS OF REFRACTION AND CHRONIC DISEASES OF THE EYELIDS.

BY DAVID DEBECK, M.D., CINCINNATI.

There are two chronic conditions of the eyelids that occur with such frequency as to be matters of almost daily interest and importance to the physician. These conditions are blepharitis marginalis and chalazion. The former is especially common. Any new light upon the causation of such frequent affections will certainly be most welcome.

The fact that these conditions are painless, do not effect vision, and give no annoyance beyond the unsightliness, bring them usually first to the family physician, so that their consideration is not at all out of place here before this Society.

Blepharitis marginalis is a form of chronic ulceration of the edges of the lids. It is characterized in the typical cases by the formation of minute pustules around the cilia. In other words, minute abscesses form about the hair follicles. The discharge from these collects in scaly masses upon the lid-border, and mats together the eyelashes. The cilia are prematurely shed, and eventually the hair-roots are destroyed; and the lid-border becomes thickened and bare.

In milder cases there seems to be merely excessive secretion from the hair glands; which secretion dries into little, thin scales along the lid-border.

Chalazion is a retention-cyst of the lid. The excretory tubule of the Meibomian gland or glands involved, becomes blocked up, or is occluded by pressure from without. The

secretion of the gland accumulates behind this point of obstruction. These are the little firm tumors to be felt in the eyelid—ranging in size from a small shot up even to that of a small hazel nut.

When incised and curretted out, they discharge a soft, gelatinous substance—sebaceous material with a reticulum of connective tissue. This treatment is the one that is habitually employed, and for that particular cyst is almost uniformly successful for the time being. But recurrences are not thereby prevented.

As regards the causation of these conditions much uncertainty formerly existed, and some still exists. It was a popular term to speak of these as "scrofulous," although very frequently, or even usually, found in robust and healthy subjects. Refuge was frequently taken behind such vague terms as "bad hygienic surroundings," "exposure," "cold," etc, although it could not but be noticed that these conditions were probably more often found in those whose environments were the very best, rather than in the classes more poorly situated. These vague expressions of ignorance might just as well be permanently dropped.

The connection between blepharitis and refractive or muscular troubles of the eye has long been established. This connection was not worked out by any chain of inductive reasoning, but followed as a deduction from the results observed in practice. As soon as any careful observer has worked over a large series of refraction cases, the connection can hardly fail to be noticed. The cases of blepharitis are practically always found associated with hypermetropia ("far-sightedness"); and the correction of this is followed by disappearance sooner or later of the chronic disease of the lid. The other refractive errors, or muscular insufficiency, may be this associated element, but in nearly all cases it is the hypermetropia that is found.

What is the reason for this relation, for which there

seems to be no direct connection? The most satisfactory explanation, or at least the one to which fewest objections can be taken, is the following:

Hypermetropia, particularly, is associated with excessive muscle-strain in the efforts of accommodation to correct for the optical defect. This will determine an excessive amount of blood to this and neighboring structures; which is the accompaniment of all muscle-action. Now the edge of the lid is covered with a very delicate epidermal covering midway between skin and mucous membrane; the hair-follicles are numerous, and provided with sebaceous glands; there are ordinary acinous glands; and the whole region is interlaced with a close mesh-work of capillaries. One can readily imagine then how a tendency to constant congestion of the anterior segment of the eyeball would be easily determined to such a region, and how prone such conditions would be to inaugurate inflammatory processes of a chronic character. The sclera and conjunctiva, being simpler in structure and less vascular, escape, although nearer the point of strain. Some such hypothesis is necessary to explain the unquestioned clinical observations.

It is the opinion of the writer that a similar causal relation exists between the errors of refraction and cases of chalazion.

The explanation must be one similar to that given above. The excessive determination of blood to the delicate tissues of the lids leads to undue glandular activity. This alone would produce a condition liable at some time or other to a blockage of one or more of the tubules. The danger is accentuated by the fact that this same excessive blood-supply will cause a congestion of neighboring tissues; and thus a pressure upon the tubules tending to diminish their lumen, and retard their emptying. This is *a priori* probable.

Still, the probability of such a causal relation is far from proving it. This hypothesis is therefore advanced so that it

may be submitted to the only method of proof that is applicable; that is, the same deduction from observation that has established the causal relation between errors of refraction and blepharitis.

From the fact that chalazion is much less frequent than blepharitis it will necessarily require a much longer period of tentative observation to fairly establish the same relation. A case which seems to show very clearly that some such relation exists is here quoted. This is admittedly probably an extreme case; but its illustrative value is great.

Frank P——, aged thirty, barber, working long hours during the day and evening. About ten years ago had a chalazion about the size of a pea in the right upper lid. This was operated upon by the late Dr. Aub. A little over a year later another appeared on the same lid, and was also operated upon by Dr. Aub. Some months later a chalazion appeared in the upper lid of the left side. He was then out of work, and this was operated upon at one of our free clinics. About a year later (that is seven years ago) I saw him first. He again had a chalazion in the right lid. This I incised and curetted. He had another return very shortly, only a few weeks elapsing. He sought other assistance, and was operated upon by Dr. Sattler. About a year later he returned again to me. He now had a chalazion in each upper lid. These I operated upon as usual. As much with the idea of "doing something," as anything else, I tested his refraction; found him hypermetropic, and fitted him with glasses to use when working or reading. Since then he has been fitted with glasses for constant wear. He has had no recurrence for now over five years.

This is the most striking case I have seen. In a period of not quite five years he had six attacks. Since the correction of his ametropia he has had none. This is certainly a surprising coincidence, if it is nothing more.

Other cases could be quoted, all more or less corrobora-

tive of this hypothesis, but time and space forbid. This series of cases the writer will carefully tabulate and embody in a more extended and tabulated article for some one of our ophthalmic journals in the near future.

The practical conclusions from these views are important.

Blepharitis may be "cured;" that is, caused to disappear for the time being by emollient applications, preferably the mercurial salves, the citrine ointment or a vaseline salve of the yellow oxide. But with the cessation of treatment the trouble will almost invariably return after a few weeks or months. It is well recognized that if anything like permanent cure is to be secured the eyes must be accurately tested and the proper glasses adjusted. This is now practically the unanimous opinion of all working ophthalmologists.

Chalazion is treated as follows: The lid is everted, and from the inner surface the little tumor is freely incised. Then with a little spoon or curette (the cataract spoon does well) the soft contents are thoroughly scraped or "spooned" out. The empty sac fills up with blood, and as this is absorbed the walls adhere and heal together. In a few weeks hardly any vestige of the little swelling remains. Such cases are then considered "cured."

If our views above given are correct, even for any proportion of these cases, it will be just as requisite, if recurrences are to be avoided, to subject all such cases to a thorough examination to ascertain the refractive condition of the eye, and to properly correct any optical anomaly with suitable glasses. Only in this way will complete and permanent relief be secured in many of these cases.

DISCUSSION.

DR. W. W. SEELY:

I think the doctor has perhaps been afraid to say too much upon the general subject. Of course every one has known for a great many years that strain upon the eyes plays a very important rôle with regard to certain diseases of the eye.

That is so well known as to need very little comment. But there are other facts in this direction which I think are not perhaps so well known, that might just as well be brought out in some remarks as in a formal paper.

Now it seems to me that no individual has been in practice any length of time, but has seen such cases as those quoted, nor has he failed to see the influence of strain upon the eye in developing these various diseases of the eyelids, and has seen it keep active various other inflammations that have not been mentioned.

I can give you an instance of a case of trachoma where the ordinary treatment had accomplished little; but on removing the strain from his eyes with glasses, went straight along and got well with little further trouble.

I have seen cases of stricture of the nasal duct, where little could be gained until glasses were fitted.

These cases would apparently point to the condition of things without anything else. Of course any man can see this in so simple a matter as blepharitis; it does not need any demonstration, it does not need any argument. But these other cases do. It is surprising to see what a rôle it plays.

People say they don't understand why a strain upon the eyes should produce a blepharitis. It seems to me a very simple matter. Whenever we have strain, there we have a greater amount of blood brought than if there were no strain. Now, assume that a part is capable of standing a certain amount of congestion; suppose a strain is brought upon the eye; suppose the eye can stand a certain amount of blood but, by strain upon the eye, a congestion of that lid ensues, and more blood is brought to those parts than was before. Those tissues are unable to stand that condition of things.

We find cases where the blepharitis lasts all of an individual's life, and you will see these cases disappear under the use of glasses. It is the strain which causes the congestion there which the tissues are not able to stand.

The further application of the same principle to other diseases of the eyes has not been dwelt upon sufficiently. I find that there are many cases of corneal affection where I can not prevent relapses by any method of treatment. In almost all these cases of eye-strain we find some defect in the refraction of the eye or in the balance of the muscles. It is a very important matter, I think, more particularly for the general practitioner than for the specialist. A general practitioner gets a case of inflammation of the lids, and finds it excessively obstinate. After some improvement the patient

returns in the same condition he was before. Be on your guard, and advise that patient to have the eyes tested, and you will be enormously assisted in the management of that class of cases.

I do not think there is anything more striking in medicine than the relation of strain on the eye to the diseases of its various parts.

RADICAL CURE OF STRANGULATED HERNIA BY THE USE OF THE BURIED ANTI-SEPTIC ANIMAL SUTURE.[1]

BY F. C. LARIMORE, M.D., MT. VERNON.

CASE IV.

Thomas G. Ewers, aged sixty-five, farmer, of Middleburg Tp., Knox Co., O., in 1862 developed a complete right inguinal hernia while in the U. S. service. He never had any trouble in reducing the rupture and in keeping it up with a suitable truss. Monday, November 16, 1891, it came down and would not stay up when replaced. On Tuesday forenoon he butchered a beef, and had further trouble; he could not get it back. His bowels moved last on Monday. He grew worse, and on Thursday, at 7 p.m., Dr. H. S. Darling, of Fredrickstown, O., saw him first and tried taxis. Dr. S. B. Petter, of the same place, was called in consultation the same night at 11:30 o'clock, and both failed to reduce the hernia. They informed the patient and his friends of the danger of delay, and urged an operation. The patient and his friends would not consent at the time, and by misunderstanding how word would be sent when they *did* make up their minds, further delay ensued, and I was not called until November 21, at 7 p.m., ninety-six hours after strangulation had taken place. Pulse 120, tongue red, skin hot and dry; nausea and vomiting. I found a large scrotal hernia the size of a fœtal head on the right side.

1. The author reported three cases at the meeting of the Ohio State Medical Society of 1891.

After the history, as above narrated, I had no desire to try taxis, and proceeded at once to operate, assisted by Drs. H. S. Darling and S. B. Petter and student Robert Bowland. An incision four inches long, parallel with Poupart's ligament, was made from without inward, and by rapid dissection the sac was washed and freely opened. No fluid was in the sac. The omentum and colon were in an apparently good condition, so I had no hesitation in replacing them. The stricture was divided. The adhesion between the contents and neck of the sac was broken up and reduction attempted. It would not go back. At this time the patient was not thoroughly under the influence of ether, so I urged the ether, divided the stricture again, and reduction was now easily accomplished. I found the sac very thin and easily torn. I extended the incision down to the cord, including the testicle, and dissected up with such difficulty that I reached the conclusion that it was a case of congenital hernia, and decided to remove the cord and testicle. I transfixed the cord at the hernial opening with a double kangaroo tendon and tied either side, stitched the neck of the sac with a row of double continuous kangaroo sutures, including the cord again, and tied. The sac was so thin and torn about the ring that this suture did not close it tight. The cord and sac were now cut away. The stump of the cord was left *in situ*, while the stump of the sac was tucked in; the pillars of the ring were sewed up with a double continuous row of kangaroo, and over this a similar suture through the deeper portion of the wound. A drainage-tube was placed in the pocket left in the scrotum by the removal of the testicle, and the entire wound was closed by a single tendon subcutaneously. Iodoform, silk protective sublimate gauze, cotton and a bandage completed the operation. The pulse after operation was 96.

Saturday morning: temperature 99°, pulse 112, respiration 24. Considerable vomiting during the night (stercoraceous); sulph. magnesia ordered. Evening: temperature 99°, pulse

110, respiration 22. Vomiting continues. Some fecal matter obtained with an enema.

Sunday, 10 a.m.: pulse 108, respiration 20, temperature 99°; tongue red and dry; bowels slightly tympanitic. Vomiting had continued as long as salts were given. Since salts were discontinued early this morning there has been no more vomiting. Ordered bismuth and pepsin with milk.

November 23, 3 p.m.: pulse 104, respiration 18, temperature 99°; tongue moist. Patient takes milk well; no vomiting. Dressed the wound and removed the drainage-tube. From now on convalescence rapid.

January 13, 1892. Mr. Ewers came to my office in good shape, with ring well filled up and quite a ridge of solid tissue over the inguinal canal. No impulse on coughing. No truss needed.

CASE V.

Barber John T. Merchant, aged twenty-seven, of Democracy, O., has double inguinal hernia. Was ruptured on the right side from birth; on the left side for two years. He wore a truss on the right side up to fifteen years ago. Since then it troubled him very little. The rupture was always down in the scrotum when he was up. Sunday, January 10, 1892, he came to Mt. Vernon, nine miles, on a large sled. He experienced pain in his rupture before he started, and became very sick on the way, vomiting several times.

I was called to see him at 3 p.m., and found him in great pain, vomiting a yellow fluid. I found a right complete inguinal hernia the size of a fœtal head, strangulated; also a small reducible inguinal hernia of the left side. He was placed on a lounge, with hips on the head-rest, and taxis tried. I gave him chloroform and continued the taxis, but without result. At 5 p.m. I put him in position, and with the assistance of Drs. J. E. Russell and L. W. Armentront, cut down on the right hernia. When the sac was opened twenty inches of the small intestine, inflated to the utmost,

crowded out. The stricture was divided in the usual way, and an attempt made to replace the intestine in the abdominal cavity; but at first, as a little was pushed in, more would come out. Considerable time was lost, and only by the persistent efforts of Dr. Russell and myself did we succeed in reducing the intestine. The opening was free, the size of three fingers, and there was no adhesion between the gut and sac. The difficulty in reduction was due to the abdominal quality of the patient's breathing. I dissected up the sac, and sewed across the neck a double continuous kangaroo suture, including the spermatic cord. The sac was resected, including the testicle. I then inserted a deep suture from within outwards, double continuous, keeping one finger in the inguinal ring, and returned the suture, including the deep structure over the inguinal canal. A single subcutaneous suture approximated the skin. Iodoform shreds of cotton and collodion completed the dressing.

Chloroform was given at 3 p. m. At the time of the operation the anesthetic depressed the pulse very much, or I certainly should have yielded to the temptation to operate on the left side also.

January 10.—9 p. m., pulse 72, temperature normal.

January 11.—8 a. m., pulse 72, temperature normal; 7 p. m., pulse 72, temperature 99°; resting well.

January 12.—8 a. m., pulse 68, temperature normal. Resting well; bowels moved by an enema. 7. p. m., pulse 72, temperature 99¼°.

January 13.—8 a. m., pulse 64, temperature normal; 7 p. m., pulse 68, temperature 99°.

January 14.—8 a. m., pulse 60, temperature normal. Resting well; sitting up in bed.

January 15.—8 a. m., pulse 64, temperature normal. Out of bed. No pain or swelling in the wound.

January 16, 17, 18.—The same.

January 19.—Dressed the wound with gauze. Deeper

parts thoroughly united. Skin gapes a little, but used no plaster.

January 20, 21, and 22.—Doing well.

January 23.—Dressed again, nearly healed.

January 25.—Wound healed.

February 1.—I adjusted a truss to the left side, and sent him home cured.

REMARKS.

In both cases the cord and testicle were removed, because Case IV was one of supposed, and Case V was congenital hernia. This alone may not have justified me in the removal of the testicle, but I confess that a cord and testicle all torn up and out of their natural bed, with sac surrounding both, rather startles me, and points to but one course, and that is, their removal. Anyway, the balance of the operation is easier and the cure more certain. Do not understand me to say that I shall practice castration in all my cases, still less to advocate it.

I used Dr. Marcy's needle in both cases. It is such an improvement over the ordinary perineum needle that I wonder how I ever succeeded without it. The kangaroo tendons are all and more than Dr. Marcy claims for them. The last case was a pure Marcy operation throughout (except the castration), and the only case which has remained under my care during the after-treatment. I was somewhat disappointed in not seeing the wound heal up entirely (which the history shows it did not), there being no reasons for its not doing so, unless the general condition of the patient, which was poor, can be assigned. Reduction of the inflated intestine was extremely difficult, and worried me very much.

Case IV had little promise of recovery after the operation. He was an old, broken-down man, with a strangulation of ninety-six hours; but he had the faith of a Paul in his surgeon, and the courage of a true volunteer soldier. He had been in all the campaigns and battles of the gallant 20th

Ohio, and came to the operating table without fear or trepidation. An additional point in this case was that the vomiting ceased when the sulphate of magnesia, ordered for the relief of its cause, was discontinued.

Both cases are in good shape to-day, with a large ridge of firm tissue over and in the inguinal canal, thus forming a natural truss-pad to keep the abdominal contents from protruding again at that point.

TUBERCULOSIS OF BONE.

BY N. P. DANDRIDGE, M.D., CINCINNATI.

In presenting the subject of tuberculosis of bone to the Society, I shall confine myself to a consideration of the most practical aspects of the subject, and especially the indications and resources we possess to combat and control this process.

The discovery of the frequency with which the bacillus tuberculosis invades the osseous tissues has simplified the many large and obscure problems connected with bone pathology, and has based our views of etiology and treatment on a much broader and firmer basis than when these processes were ascribed to the very illy-defined influence of struma and scrofula, whether excited or not by the presence of trauma. The essential condition of tuberculosis is the presence of the bacillus tuberculosis, and whenever this germ is discovered the pathological process is regarded as tubercular.

It is thus found that the lungs can no longer be regarded as the only, or indeed the more generally occupied ground of bacillary attack, but that the lymphatic glands, osseous tissue, peritoneum, mucous membrane, skin, and the various organs of the body are very frequently the seat of tubercular processes, and that these lesions may represent and remain as primary foci of disease, or secondary processes may be developed from them, and that each may become the origin of a generalized tuberculosis.

The distribution of surgical tuberculosis is shown by the figures of the Würzburg Clinic, quoted by Osler. In 1,287 tuberculous cases the lesions were distributed as follows:

Bones and joints, 1,037; lymph glands 196; skin and connective tissue, seventy-seven; mucous membranes, ten; genito-urinary organs, twenty.

A proper appreciation of the course and pathological anatomy of the tubercular process is essential for a just understanding of the methods of treatment. What I shall say upon this part of the subject will be drawn very largely from the writings of Senn.

"The effect of the bacillus tuberculosis on the tissue is to produce a chronic inflammation, which invariably results in the production of granulative tissue. The characteristic pathological feature of every tubercular product consists in the tendency of the cells to undergo early degenerative changes, which are caused by local anæmia and the specific chemical action of the ptomaines of the tubercle bacilli, and consist in coagulative necrosis, caseation and liquefaction of the cheesy material into an emulsion, which has always been regarded as pus, until recent investigations have shown that it is simply the product of retrograde tissue metamorphosis, and not true pus. I believe it can now be considered a settled fact that the bacillus tuberculosis is not a pyogenic microbe, and that in the absence of the microbes it produces a specific form of chronic inflammation, which invariably terminates in the formation of granulative tissue; and that when true suppuration takes place in the tubercular product it occurs in consequence of secondary infection with pus microbes" (Senn).

The bacillus may succumb to the natural resistence of the tissues, and the granulation tissue is then converted into cicatricial tissue, and a spontaneous cure ensues. "If the bacilli, however, destroy the granulation cells, coagulative necrosis, caseation and liquefaction of the infected tissues takes place; a spontaneous cure is, however, still possible if the fluid portion is absorbed, and the solid débris becomes encapsulated. The same favorable termination is cited under

similar circumstances if the primary lesion has healed, and the inflammatory product is removed by operative interference, under the strictest antiseptic precaution, or if at the same time the primary forms can be removed by extending the operation to the primary lesion." Should infection by pyogenic microbes take place, suppuration will occur, and in the process of time all of the tissues infected with the bacillus may be destroyed, and a cure thus be affected. This result is of frequent occurrence in the lymphatic glands of the neck, but it is only completed after a long suppurative process, during the continuance of which septic infection may occur, or amyloid degeneration develop, if the "discharges have been long enough continued, and are sufficiently profuse."

From the above citations it is apparent that the modern doctrine of tuberculosis teaches that the tubercular process, due to bacillary infection, is necessarily very chronic in its course, but may, under favorable circumstances, run its course as a local affection and terminate spontaneously, generally, however, leaving permanent evidence of its presence by the development of cicatricial tissue, which follows the destructive effects of the bacillus upon the tissues invaded.

In applying the above-determined data to tuberculosis of bone, I shall make no distinction between tuberculosis of bone and joints, but shall consider them inseparably bound together.

By far the larger portion of chronic diseases of the joints, and according to Volkman, all cases in children, commence as a tubercular ostitis, and in only the minority is the synovial membrane attacked.

Tuberculosis of bone is necessarily an embolic infection, "the lumen of the vessels being directly blocked by the bacilli; or implantation on the walls of the vessel" taking place, a subsequent thrombus ensues.

The conditions most favorable for these results are to be found in the epiphyseal line of the long bones, or in the can-

cellated bones when the medulla predominates during the growing periods of life, and in consequence we find a large proportion of cases of osseous tuberculosis in early childhood.

The source of infection in bone tuberculosis where there is absence of evident tubercular lesions elsewhere is probably to be found in the alimentary canal or respiratory tract. The tubercular process once started in the bony tissue, the development of the characteristic granulation tissue can only take place at the expense of the osseous trabeculæ, so that a condition of rarefying ostitis develops more or less slowly, according to the very varying conditions of different cases. The tubercular process may remain limited to the epiphysis, and result in a circumscribed necrosis, or in the formation of one or more caseous masses, which may or may not liquefy, or a spontaneous cure may result, with little or no impairment of the neighboring joint.

The destructive tubercular process generally, however, reaches the joint surface, the cavity of which becomes filled with fungous granulation tissue, with a very varying amount of fluid, which generally contains more or less flocculent caseous material. This growth of the tubercular granulation tissue is associated with a thickening and œdematous condition of the synovial membrane, and with a greater or less amount of destruction in this membrane and the other constituent structures of the joint. Entire cessation of the disease process is still possible, leaving the joint impaired by the thickening of the peri-articular tissues, the formation of inter-articular fibrous adhesions, or, much more rarely, by a true osseous ankylosis.

Whether of primary osseous or synovial origin, the tubercular process does not, in a large proportion of cases, confine its action to these structures, but invades the surrounding structures. Abscesses frequently develop. These may be directly connected with the disease in the bone or in the joint cavity, or may be apparently independent of the primary

foci. In a limited number of cases absorption and disappearance of the abscesses may take place, but in the great majority of cases they find their way to the surface, and very intractable sinuses and fistulæ ensue. Abscess is said to occur in about 50 per cent. of the cases of tubercular joint disease.

A knowledge of the character of these abscesses is essential to a full understanding of the course of bone tuberculosis. "In all tubercles two processes go on; the one caseation, destructive and dangerous, and the other sclerosis, conservative and healing. In so-called cold tuberculous abscess the material is not, histologically, pus, but a *débris* consisting of broken-down cells and cheesy material" (Osler). It is thus we can understand their long-continued quiescent state, to be suddenly broken by the abrupt development of the symptoms of septicæmia when septic infection takes place after surgical interference. On the boundaries of these abscesses the tissues are crowded with leucocytes, which probably exercise an active influence in limiting the progress of the tubercular invasion. The cheesy tubercular product found in these cavities rapidly produces a tubercular infection, as was shown by Villemin by inoculations, and are often the source of auto-infection and a generalization of the disease. When the tubercular abscess contains true pus it must be due to an infection by pathogenic germs, and when such infection takes place there is usually a much more rapid development, with active symptoms of pain and fever.

The tubercular abscess tends to wander from its point of origin, and, either by the force of gravity or guided by some overlying and opposing fascia, reaches the surface a long distance from the starting point. These abscesses, in their wandering, may leave behind them a long continuous fistulous tract, forming an unbroken connection with the seat of primary disease; or the tract may close and leave the abscess circumscribed and isolated. If, now, the primary disease undergoes a cure, we have a residual abscess, which

may remain latent for an indefinite time, may possibly disappear or may finally reach the surface at a distance from its origin, or may become the source of further infection. Experience has abundantly shown that if the contents of these abscesses be removed and the surrounding tubercular tissue fully destroyed, the lesion loses its tubercular character, and may definitely and permanently heal by first intention throughout, and so abruptly terminate the disease, if the primary focus is controlled, which, left to itself, could only come to an end after a very chronic course, with the possible intercurrence of such dangerous conditions as septicæmia, secondary tubercular foci and generalization of tuberculosis.

From the above brief account of the pathological anatomy of bone tuberculosis, it is apparent that the affection of bone and joint are inseparable, and it is now generally admitted that the large majority of chronic diseases of joints are in reality of a tubercular character. The shaft of the long bones, on the other hand, are seldom affected, and those cases of osteomyelitis which result in more or less necrosis are due not to bacillary infection, but to the presence of the microbes of suppuration, and not to any specific germs.

The effect of tuberculosis of bone is not by any means limited to the destructive action on the bone ends and joints and the invasion of the surrounding tissue. From the earliest stage there is developed a series of "neuro-muscular phenomena," characterized by muscular contraction, which at first causes fixation of the joint, and later results in permanent shortening and fibroid degeneration of the muscles, which produce the displacements and deformities found in joint disease. These muscular contractions play a most important part in the symptoms and course of joint disease of all kinds, and are responsible for much of the pain and most of the deformities, and are indirectly responsible for many of the abscesses which are of such frequent occurrence. The increase in joint pressure which they

produce exercises a destructive action on the softened bone tissue.

Among the very early symptoms of joint disease, atrophy of the muscles which move the articulation must be noted—an atrophy which generally leaves a marked impairment in growth throughout life. A large part of the treatment in joint disease is directed towards controlling or overcoming reflex and voluntary muscular movements. We have seen the controlling influence of bacillary infection as an etiological faction in the production of tubercular lesions; it is more than probable that trauma plays a secondary but important rôle in preparing the soil for the reception of the seed. Certainly in the developed tubercular process we constantly see the hurtful influence of trauma, whether owing to joint pressure from superincumbent weight or muscular contraction, or caused by over-strain or even slight movement.

It is not my purpose to enter into a full discussion of the symptoms of bone tuberculosis; certain symptoms must, however, be referred to. Pain is by no means a constant symptom; even cases of hip-joint disease may run their course without any notable degree of pain. It often is, however, present in an agonizing degree, and becomes a dominant symptom. It is usually more intense while the process is limited to bone or joint, and is then in its tension. In the later stage, where extensive destruction has taken place, it is often notable by its absence. Movement and joint pressure always intensify it when present. An evening increase of temperature to a slight degree in the early stage can generally be found if sought for, but so slightly disturbing in its effect that the use of the thermometer can alone determine its presence. In many cases and in time—probably in most cases—it becomes a notable symptom. It is seldom absent in children when there is pain. It is generally associated with suppurative processes when there is imperfect drainage, though not necessarily with discharging sinuses. Its sudden

occurrence may be due to a forming abscess, an accidental disturbance of digestion, or to some simple emotional cause.

Atrophy of limb and fixation and rigidity are both symptoms of great importance, as they are of early occurrence, often the first definite evidence of joint disease. In the later stages muscular contraction determines largely the permanent loss of function and determines the presence of characteristic deformities.

In discussing the question of treatment in bone tuberculosis, we must keep clearly in mind the widely divergent conditions we are called upon to meet in the early and late stages of the disease, both in regard to the amount of local destruction and the integrity, more or less impaired, of the different organs of the body. From the above discussion of the pathological anatomy of tuberculosis it is apparent that we are dealing with a process essentially chronic in character, but one which may come to a spontaneous cure with little or no destruction or impairment of function; that, on the other hand, reparative action may take place after the largest destruction of the parts, and bony anchylosis ensue. It is never to be forgotton that the disease tends to the production of definite deformities by muscular action as well as by the destruction of joint surfaces; deformities that will become permanent if a cessation of the active disease ensues.

First, then, the indications in the early stage are largely summed up in simple rest of the affected part—a rest which shall avoid the hurtful influence of pressure, of concussion and of movement. The thoroughness with which this can be accomplished differ greatly in the different joints, and the methods differ so greatly and so widely that I must confine myself to the methods best adapted to a single joint.

In the hip joint, rest is best secured by recumbency in bed, while inter-articular pressure, muscular contraction, and deformity, are prevented by weight extension. In the less acute cases this alone often suffices, but in the more severe

cases it is also necessary to immobilize the body. For this purpose the simple bed frame used by Bradford in the Children's Hospital, of Boston, answers an admirable purpose. Should the flexion and adduction, or abduction, have already taken place, the extension should always be begun in the line of the deformity. For this purpose I have found convenient a bed frame which I have employed in the Children's Hospital of this city.

The length of time necessary for the treatment by recumbency varies from a few weeks to many months. In exceptionally severe cases, when pain is a notable feature, a plaster-of-Paris splint from the ankle to the nipple line is employed. When the patient is allowed to get up, the diseased hip is proctected by one of two methods: A long traction splint, such as is used by the Boston Hospital, is applied with a high shoe to the sound leg. In this splint the weight of the body rests on perineal straps, and traction is effected by bands reaching to the foot-piece. In the other method, the Thomas splint is used, which simply immobilizes the joint without traction, while the patient goes about on crutches, being lifted up on a high shoe on the sound side. The use of the high shoe and crutches, without support to the joint, as suggested by Hutchinson, cannot be safely trusted until all tendency to muscular contraction is long past, and will not prevent the characteristic flexion and adduction in the earlier stage, even in mild cases. Some of the most marked deformities I have met with have been subjected to this treatment, cases which have otherwise run a most favorable course.

In a large proportion of cases the above means will conduct the case to a successful termination. The length of time has been studied by Shaffer and Lovett in thirty-four cases, and lasted from two to eight years. Twenty-three of the thirty-four cases were under treatment from three to four years. It must be observed that the treatment thus

advocated in hip-joint disease is directed largely to protection of the joint against such hurtful influences as jars, strains, movements, and pressure. Traction limits, though it does not entirely prevent, joint movement, and relieves joint pressure very largely by controlling muscular spasm, and so obviates the pain and the effect of such hurtful influence upon the rarified bone tissue. Where efficient joint protection is persevered in, the percentage of cases in which abscess develops, it is greatly diminished.

Surgeons are by no means agreed upon the best treatment of tubercular abscesses. Aspiration is advised by some and condemned as useless by others. Townsend and Gibney report considerable of success, while Lovett finds little promise in the method. I had myself rather inclined to this latter view, until some recent experience has made me look much more favorably upon it. Undertaken with ordinary care septic infection is not liable to take place, the prevention of which requires unusual precaution in open incision, and unless therefore all the means are at hand to secure perfect ascepticism, aspiration should be tried and repeated if necessary; and if a cure is not effected in a considerable proportion of cases the size of the abscess will be markedly diminished, and so rendered more favorable for a more radical operation. These favorable changes are generally associated with an improvement of the symptoms dependent upon pressure.

As first suggested by Verneuil, the injection of abscess cavities by an emulsion or solution of iodoform is becoming more and more prominent. It has recently been strongly advocated by Senn. This agent has a strong inhibitory action on the development of the bacilli. A solution of iodoform in ether was at first used, but is strongly condemned by Senn, and an emulsion in glycerine or oil advocated in its place. The method of procedure is as follows: The surface of the abscess is carefully disinfected and the

solution, trocar, and syringe, to be used most carefully, sterilized by heat. The abscess cavity is punctured by a trocar of sufficient size to permit the complete evacuation of the abscess cavity, and if there are any curdy masses present they should be washed out with a three per cent. solution of boracic acid. From half an ounce to two ounces of a three per cent. solution of iodoform in glycerine or oil is then thrown in and allowed to remain, the dressing being so arranged as to make even pressure. The method is equally applicable to tubercular joints or ossification. Here interstitial injection of the solutions are to be made in the thickened capsule and into the tubercular foci. The injection is to be repeated at intervals of a few days. A rapid diminution of the abscess cavity is said to occur. Senn further advocates the injection of the same emulsion directly into the substance of bone affected by penetrating the outer shell with a trocar and canula. In one case of hip-joint disease treated in this way the outcome has been thus far very satisfactory. This child entered the Children's Hospital last fall, having suffered with symptoms of hip-joint disease for about two years, of about an average severity. There had been no suppuration and no evidence of forming abscess. There was a slight rise of evening temperature and the hip was flexed and adducted. This mal-position was corrected by extension, and the iodoform emulsion in glycerine was injected on three different occasions. The needle of the syringe, which holds an ounce, was driven down into the bone just above the trochanter, and an attempt was made to evacuate any fluid which might be found in the joint cavity. This proved fruitless, and about two drachms of the ten per cent. solution was then thrown in and allowed to remain. The operation was performed under local anæsthesia with ether spray, without pain; no reaction followed. Extension was kept up for several weeks, and the child then allowed to get up on a traction splint. The present condition is favorable; the

limb is in good position, without any movement at the joint. Whether this result is due in any way to the iodoform injection, or whether we simply had to do with a mild case, which readily yielded to properly applied extension, it is impossible to say. If the injections did no good, they certainly did no harm.

Interstitial injections of the emulsion of iodoform into tubercular bone, foci and joints and abscess offers sufficient encouragement for further trial, but the cases thus far reported hardly sustain the high estimate held by some of the results of this method.

The balsam of Peru is said to be almost equal in efficiency to iodoform. In this connection the injection of zinc chloride, as advocated by Lannelogue, should be mentioned. I have had no experience with the method.

With more confidence, and with a larger experience, I can recommend free incision of tubercular abscess, whether directly connected with diseased bone or not. The incision should be free enough to lay bare the entire cavity, so that the walls can be thoroughly scraped and all diseased tissue removed with curette, scissors or knife. The cavity is then to be thoroughly flushed out with a bichloride solution or hot sterilized water. Bleeding may be checked by packing with iodoform sterilized gauze. The cavity is then filled with the iodoform emulsion and sewed up tight, the emulsion being largely squeezed out, or a drainage-tube may be inserted. When this is done the tube should be removed in a short time. The dressing should be so arranged as to make even and firm pressure over the seat of operation, so as to bring into contact the walls of the wound. Increasing confidence is being felt in treating these cases without drainage entirely; complete and satisfactory healing is much more often obtained, and persistent fistula less often left behind, than when a drainage-tube is used, provided, of course, the operation has been so thorough as to completely destroy all tubercular tissue.

These operations must be conducted with thorough antiseptic precautions, from fear of septic infection, and the destruction of the tubercular tissue should be complete, lest a rapid reinfection of the wound surface or recent cicatrix ensue from diseased tissue left behind, or even a general tuberculosis. Extensive involvement of the wound region is not an infrequent sequel to these operations.

It is evident that the tubercular abscesses, associated with the different bones, differ greatly in the facility and efficacy with which the direction above given can be carried out. In most of the cases associated with spinal disease thorough and complete operation is impossible. In such cases free incision, free drainage, and frequent irrigation should be practiced. In such cases the peroxide of hydrogen is the best and most far-reaching antiseptic. Of the methods described most confidence should, I think, be placed on free incision, and, as a rule, I should advocate early operation, believing that we have good prospect of rapid and permanent cure. It must, however, be remembered that such authorities as Schaffer and Judson strongly advise the propriety of non-interference.

It may be well to here consider the influence of abscess on the prognosis of joint tuberculosis. It certainly complicates mechanical treatment, is more frequently seen in untreated than in well-treated cases, and much more frequently in rapidly-developing and severe than in mild cases. But on the whole there seems to be a growing confidence in the fact that the presence of abscess does not necessarily increase the gravity of the outlook of joint cases in regard to the duration of the disease, or the future function of the joint. Indeed, Gibney has recently asserted that in disease of the ankle joint suppuration is a favorable, rather than an unfavorable symptom.

Lovett and Shaffer have studied the effect of the development in thirty-nine cured cases of hip-joint disease treated by

mechanic means. In these thirty-nine cases there was one or more abscesses in twenty-seven.

The result in these twenty-seven cases was as follows: No motion in twelve; slight motion in four; ten to forty-five degrees motion in five; ninety degrees motion in three; perfectly free motion in two.

There remains the operative treatment of hip-joint disease to consider. Considering the satisfactory results which follow the complete removal of a circumscribed tubercular process, such as seems to follow the complete removal of tubercular cervical glands, it might be inferred that early and complete removal of the bone lesion would yield equally excellent results, and so indeed it is considered to do by some surgeons. Among the most pronounced advocates of early excision is G. A. Wright, of Manchester, England, who asserts that "treatment short of excision, when once a suppuration occurs, is useful only as a palliative, or as a means of temporizing."

Such radical views have certainly not met with general acceptance, and cannot be said to be sustained by the facts, as seen by the considerations above quoted. Both, as to the functional results obtained, and the mortality, Lovett, in his recent book on diseases of the hip, has very conclusively shown that mechanical treatment is superior to excision.

That excision does not secure immunity from general or secondary infection is shown by Kœnig, who found after twenty-one excisions that death occurred within four years in 47.6 per cent. from tubercular lesions elsewhere. Cammont, in twenty-two excisions, found death to be due to subsequent tubercular trouble elsewhere in one-third of the cases, while in twenty-six treated conservatively, only one-fifth were lost by this affection.

There remains a considerable number of cases that have either been untreated, insufficiently treated, or have not yielded to conservative treatment, in which more radical

operative measures are called for. To quote from Bradford and Lovett: "Excision has no place in the routine treatment of hip-joint disease, because its mortality is higher and its results inferior to mechanical treatment. It has, however, a decided usefulness in late cases, when it becomes a distinctly life-saving procedure, and in severe cases, at an early stage, where no home treatment or adequate hospital treatment for a long time is practicable."

The satisfactory results of the removal of tubercular glands and abscesses and the influence of the operation of erasion, particularly as applied to the knee joint, have materially modified the methods of excision. The formal removal of the joint surface should no longer be held to be sufficient, but the operator should only be satisfied when, with curette or knife or scissors or cautery, he has thoroughly and completely destroyed every form of tubercular disease within and without the joint.

The variety of operative methods does not come within the province of this paper. Excision should be reserved for cases of advanced disease, especially where, with extensive bone destruction, discharging sinuses have defied treatment, or are immediately threatening life, and particularly when "displacement of the head of the femur on dorsum ilei has occured, with chronic sinuses and deformity."

The existence of simple sinuses does not in itself necessarily determine the necessity for excision. An attempt, however, should always be made to control suppuration by curetting these tracts, by securing free drainage, and the constant use of antiseptics; of these latter, the peroxide of hydrogen stands preëminent. Even when excision is determined on, the intervening time should be employed in the careful and frequent disinfection of these tracts.

There remains as a final resort amputation. Amputation in advanced cases of tubercular joint disease should, I am satisfied, play a more important rôle than it usually does in

both child and adult. Often, after months or years, a shrivelled and deformed limb is preserved, a detriment and an inconvenience, and often a source of fresh danger, when an amputation would have restored health, avoided suffering, and left the individual less a cripple than when embarrassed with a dangling appendage, immovable wrist and fingers, or a foot which will no longer bear the weight. Amputation would prevent many a case of generalization of tuberculosis, and many a case of amyloid degeneration, and I have seldom had occasion to regret when I have decided on this final step, and have much more often regretted its omission.

The general principles upon which rest the methods above described in the treatment of hip-joint disease are equally applicable to tubercular bone disease elsewhere. In an early stage rest as complete as possible should be secured for the seat of disease, and this alone, if persevered in for a sufficient time, which is to be measured by years, will affect a cure in a considerable proportion of cases. The appropriate mechanical means differ, of course, with the different seat of disease. This rest, to be efficient, must control muscular contraction, and so prevent deformity as well as pain. The interstitial and interarticular injection of iodoform emulsion promises sufficient results to justify extensive trial, and it may be that we will by this means be able to control and destroy the early developing centres of disease. It would seem to be especially applicable to limited foci of disease situated in regions not readily accessible. Readily accessible abscess had better be freely and early incised, and in those not readily reached by the knife the aspirator may be used with fair prospect of success.

DISCUSSION.

DR. W. E. WIRT:

There are a few points connected with the paper just read which I would like to consider.

I would like to ask the doctor what he gained by

the use of crutches with the ordinary walking splint. At the Hospital for the Ruptured and Crippled, in New York City, where they have two hundred beds, they find great difficulty in getting children to use crutches. In cases where a high shoe could be put on one side and crutches used, this treatment cannot be carried out because the children will not use the crutches. In knee cases we used the Thomas knee splint, because it raises the foot off the floor, and they cannot get the foot to the floor, and we accomplish the purpose in that way.

In hip cases with the Thomas splint the same difficulty arises, the children will frequently hobble along on the lame limb, even with crutches, and they will throw away the crutches; with one shoe built up four inches they will hobble along on the lame limb.

Dr. Gibney has what he calls the "nurse," by which the Thomas splint is carried under the foot, so that the child cannot get on that foot.

While I was house surgeon for the Hospital for the Ruptured and Crippled, one of the assistants looked over the records for a number of years and found that in four or five hundred cases 87 per cent. of the abscesses had been cured by aspiration simply, although the most careful antiseptic measures had not been used formerly. This speaks well for aspiration.

In regard to operative measures at the above named Hospital, resection is a last resort. In an ordinary case of hip joint disease that is doing fairly well with conservative measures, resection is not employed. From time to time these joints are scraped out by a spoon and packed, and frequently the abscesses are drained or are aspirated, and such measures as that are used. Finally, if the child is getting worse, and it is seen that something must be done to save its life, they resect the joint.

LESSONS OF SEPSIS.

BY ROBERT PETER, M.D., CANAL DOVER.

In these blessed days of antisepsis, thanks to Pasteur, Lister and Koch, we are at least permitted to come to our patients with *clean hands and a clear conscience.* These sanitary precepts are founded upon the dire lessons of sepsis. This dread process is the dispenser of the admonition—"Let another man's shipwreck be your sea-mark." And yet, how little is its intimate nature understood! It would seem that that this were still largely an unexplored field, in which work need be done.

Our theme, therefore, is not so easy to define. A septic process is so complicated that a number of complex factors must necessarily enter to produce it. That stage in our knowledge is not yet at hand that we can fully appreciate all these factors, so curiously interwoven in their relations to each other, as they are concerned in sepsis. However, it may be briefly defined as infection and intoxication which arise when specific pathogenic germs gain access to the body, and, finding conditions favorable, they grow and multiply therein, and in so doing elaborate a chemical poison which induces characteristic effects. These effects are sometimes only local, or both local and systemic; this will often only depend upon the kind of germ, or both upon the kind of germ and the kind of host.

It is in physical life just as it is in social life: the lower grade is striving to oppose the higher. *Instability* of organized structure and function during life, as well as of organic

material after death, makes bacterial life possible. Under these circumstances organized form falls prey to bacterial life's action, by which means it is returned to its primary or inorganic state from whence it was taken. In this process *the transition products necessary to septic intoxication* are given.

In a scientific way this fact was first proven by Panum in 1856. He showed that poisons comparable to venom of serpents, curare and nicotine, and not to be destroyed by either boiling or evaporation, are formed during decomposition of animal matter. Since his time Brieger deserves credit for isolating a number of these putrefaction ptomaines; and, what is still more important, he was the first one to demonstrate the fact that certain poisons are also formed within the living body by certain germs, causing infectious diseases. Hence it is evident that every germ which causes disease in man does so by virtue of its chemical character. These poisons may result, first, from the secretion by some of the bacterial cells themselves; secondly, from the splitting up of complex compounds of organic source by the activity of bacterial life.

Ever mindful in her conservatism, nature provides a restorative process to regenerate tissues impaired by traumatism and disease. It resembles in every respect the physiological process of growth of tissues, just as is observed during development of the body; and, like in other developmental processes, more or less heat is evolved. Embryonal cells promptly undergo transformation into tissues which correspond to the anatomical seat of lesion. Unmolested, this process *never* proves destructive, but *always constructive;* and it ever promptly attains its end. However, molested by bacterial life, a process *never* constructive, but *always destructive*, is inaugurated; and abnormal heat is generally evolved; embryonal cells are *not* promptly, and more often *not at all*, transformed into tissues corresponding to the seat of lesion, but are broken down and appropriated to the for-

mation of poisons which are utilized in intoxication. This complicated process *never* promptly attains a salutary end, but only too often destroys the host.

CASE I.

Somewhat uniquely illustrates virulence—an old and only too oft-told story. Mrs. —— is on a journey of several hundred miles; while on the train she is seized with pain and flooding, and, as she puts it, "something drops while in the water-closet." After reaching her destination flooding still continues for about one week. Loath to seek advice, failing strength and offensive discharges finally constrain her to do so. On examination the doctor finds the os uteri tightly puckered up; forcibly dilating it, he removes a small amount of débris. Three days after the patient takes a violent chill, followed by progressive inflammation of the surrounding tissues and involving the pelvic peritoneum. For three days the patient is entirely unconscious; pulse and temperature fluctuate, at times the former ranging over 160 beats per minute and the latter over 105° F. The writer is called per telegram; on his arrival the patient has regained consciousness and is somewhat better. The doctor and his associates, who together are now attending, are told that the trouble is evidently septic, but this they are not inclined to believe. But very soon there are thirty-five inoculated *puerpera* in that community, out of which number Mrs. —— is the only one who survives. Even one of the physicians becomes inoculated from some one of his patients, and he has a very serious time to recover. Mrs. ——, after four years, suffers since from chronic pelvic abscesses.

It is, of course, assumed that infection is always from without. Germs may be conveyed into the body in many different ways. Into mucous channels, for example, they may find their way by inhalation or by being swallowed with the food. True, the hydrochloric acid contained in the gastric juice serves often to protect the digestive tract from

infection, but under certain circumstances these invaders acquire an unusual amount of resistance, so that they can withstand the action of the stomach's acid secretion, as well as can the spores. After alighting on a mucous or cutaneous surface the infecting germ furthers its journey into the tissues through a solution of continuity of structure, be it ever so insignificant. It is a noted fact, that infection is even more often apt to occur through a merely slightly broken surface that does not bleed, than through a bleeding one; because, in the one case the infecting agent is readily taken up by absorbents, while in the other, it may be washed away.

Germs always follow the avenues of least resistance; some forms find in the blood, others in the lymph spaces and vessels, the conditions most favorable for their proliferation. And even after they do gain access to the body, the same kind of infecting agents do not always produce like effects on different hosts. Sometimes in one instance it may prove only a local process, while in another it may prove both local and systemic. It is believed that this will generally largely depend upon the number in which the invaders are present, *i.e.*, the size of dose, upon the varying virulence which the same species under different circumstances possesses, as well at the varying capacity of the host's resistance to ingress of the germs.

CASE II.

Albert K., aged five years, gets his right hand into a pulley, tearing away the distal phalanges of the little and third fingers, and more or less crushes the whole hand. His wounds are treated with iodoform dressings, yet the parts suppurate freely; however, the boy suffers no systemic effects. On a very busy day the father brings his boy to the office, to obtain new dressing. To gain time, the father is requested to proceed first in removing the old one. In doing so, he runs the tip of his right thumb over the point of the dressing pin and barely nicks it. Three days after he has a decided chill, fol-

lowed by high fever, and he is a very sick man. The thumb is very painful and swollen, and progressive, destructive inflammation sets in, that involves the entire hand and forearm. Three incisions are made to drain off the pus: one into the thumb, one each into the hand and forearm respectively. Despite our treatment, the entire belly of flexors of the thumb sloughs away, and the father but very slowly recovers; while the son's wounds promptly heal, and he is at the same time enjoying the best of health. This narrative first shows the difference of havoc produced upon the son and father respectively, by the same kind of pathogenic organisms; further, it shows in the father's case the aptitude of infection through an insignificant portal.

Both character and degree of infection and intoxication will first depend upon the kind and competency of the infecting agent on the one hand, and secondly, upon the kind and susceptibility of the host on the other hand. These are problems towards which the complex factors of the microbe's individual equation, as well as the complex factors of the hosts' individual equation, must respectively contribute to solve. Diverse tissue metabolism resulting from the whims of fluctuating nutrition and waste, both during health and disease, must, no doubt, variously affect the parasite's environment, and, therefore, also its capability, as well as the host's response to bacterial reaction. With such variable conditions, chemism and concomitant symptoms must, therefore, often and widely differ.

CASE III.

Mr. E. C. M., aged sixty years, is afflicted with erysipelas, involving the face, ears and parts of the neck and scalp, which is accompanied by uncontrollable nausea and vomiting. From Sunday to Thursday the temperature ranges between 100.5°F. and 103.5°F.; pulse between 86 and 96 beats per minute. On Thursday the temperature drops to 97°F. and the pulse to 66 beats per minute, *and at the same time*

nausea and vomiting cease; but the local conditions remain about the same. This shows that chemism radically changed on Thursday, and with it did also all of the systemic manifestations, while local appearances are seemingly not much changed.

CASE IV.

Mrs. J. F., about thirty-five years of age, gets pregnant in August, and her pregnancy is accompanied by uncontrollable vomiting, so that she rapidly emaciates and fails in health. It so continues until one week before Christmas, when she aborts. The family physician is called. Patient appears to him rather large for the length of time of pregnancy. An abdominal effusion is noticed by him. The puerperal state in itself passes by uneventfully, only vomiting will *not* cease. The writer is called in consultation, and the patient is found *extremely* emaciated and enfeebled, with a very rapid pulse of 144 beats per minute, and a *remarkable vacillating* febrile movement, fluctuating within two hours, first from 100.5°F. to 97.5°F., and then to 101°F. The tongue shows two large necrotic patches. The stomach is very irritable, rejecting everything, and is distended with gas. The spleen is considerably enlarged, and as already stated, there is some abdominal effusion. Close inquiry elicits the fact that the patient had fever for some time before miscarriage. Vomiting not ceasing, we know that *now* its cause is not pregnancy; and from the other data at hand, it appears that our patient suffers from sepsis. The infection must be traced to the *primæ viæ*, and no doubt prior to *puerperium*. This would illustrate the predisposing influence of mal-nutrition and temperature vacillation characteristic of some forms of sepsis.

The entrance of the different bacteria into the body, their residence there and their means of support, result in different processes. Some of these processes are always local, and never more, as in gonorrhœa(?), infectious ophthalmia, etc. There are some in which local evidence is almost *nil*, while

the systemic manifestations are alarming, as in tetanus, la grippe, etc. These are, no doubt, constant biological stipulations. While again, we have to deal with some bacterial processes which are not constant in their behavior; at one time they are only local, while at another, both local and systemic, as in pyogenesis, etc. These, as we have seen, are mainly governed by the host's own resisting powers. Then we may have mixed processes, known in bacteriology as symbiosis; as may be found with diphtheria, typhoid fever, tuberculosis, etc.

Progress of infection and intoxication is encouraged by negative response of the host's immunity-giving agencies. When bacteria are brought into contact with living tissue, certain wandering cells come to its rescue, devouring and peptonizing these offenders. This is the doctrine of phagocytosis, first demonstrated by Metschnikoff. Phagocytosis depends upon the character of "chemiotaxis." By this is meant the attraction ("positive chemiotaxis") or repulsion ("negative chemiotaxis") of phagocytes. Prudden and Hodenpyl believe that the phenomenon of "chemiotaxis" is due to chemical action of bacterio-protein. The infecting agents must also meet the germicidal proteids of the blood; these may prove negative, and hence conducive to the inroads of infection. Finally, when bacterial products are not rendered inert by metabolism going on within, and their elimination is ineffectual, then there results progressive intoxication.

The local changes resulting from bacterial action are due to the toxic irritation which the sympathetic nerves receive, and this leads to afflux of blood to the irritated part, owing to the dilatation of innervated capillaries. The congestion, the stasis, the altered local diffusion and nutrient phenomena, are the natural consequences of the local irritation. Further morphological changes will depend upon the different nature of poisons. For instance, many bacteria form peptic fer-

ments which break down and dissolve the infested tissues; in other words, the tissues are converted into a condition of disintegration or necrosis of one sort or another. Then again, in some way not yet known to us, very peculiar and characteristic inflammatory changes may be brought about, which result in the formation of new tissues of various kinds. As examples, we may cite tuberculosis, syphilis, etc.

We have seen that when pathogenic germs find a *locus minoris resistentiæ*, how they may enter the living organism and there can produce their various toxic effects. True, the chemical products have not yet all been severally isolated; that must be formed in these different processes. Yet, enough work has been done in this direction, to prove that this is the right path of research to follow in pursuit of the essence of truth. But the living body is such a complicated structure of unstable component parts and functions, that it is an easy matter to understand how manifold is the versatility of metabolic processes in health, how much more so in disease, *and especially so in septic diseases.* Therefore, never forget, that we have to deal with the *individual*, as well as with the *materies morbi*, in our diagnosis-making. The symptoms of the different septic processes may manifest themselves in such a variety of perplexing ways, that it peremptorily behooves us to be on our guard. It would be a blessing if there were some unswerving pathognomonic guide to direct attention. The nearest that one may come to this is: adopt the eccentric, but never unsafe philosophy of the pangermist, to always look for *sepsis.* So varyingly do these different septic processes manifest themselves, therefore always think of them. It is easy to diagnose an advanced tuberculosis, a septicæmia in the puerperal state, or a pyæmia when the local evidences are apparent; but not so, when such land-marks are not plainly manifest.

The bacterial poisons all more or less affect the central nervous system. This fact is variously expressed in the dif-

ferent septic processes. For instance, some may be especially depressing in their action upon the heart, even morphine and veratrine-like; or, they may induce atrophine and digitaline-like and other peculiar effects resembling those produced by vegetable alkaloids. Others, no doubt, have a perverting influence upon the trophic nerve-functions; while all of them, at different times, manifest a predominant or selective action upon certain individual nerve-tracts. This may prove a source of perplexing annoyance, well calculated to overshadow other symptoms, and to mislead in diagnosis. To illustrate, let me refer to a case of pyæmia reported by me in the *Columbus Medical Journal* of March, 1892, in which is shown the selective action upon the phrenic nerve. It is the case of my own brother, who for five days and five nights almost incessantly hiccoughed; sometimes from 900 to 1,500 times per hour, both while awake and asleep. There was a suppuration of the left ankle, from which a metastatic pus-localization formed in the interosseous space of the left fore-arm, just below the elbow. The patient recovered; but very slowly and conditionally.

Symptoms of elimination and different types of fever often render signal service in diagnosing the different septic processes. Yet even these may prove inconstant—*e. g.*, who has not seen constipation in typhoid fever, or the type of this fever widely deviate from its former continuousness, or even seen it drop by times below the normal? "A combination or succession of hyperthermic and hypothermic phenomena may become manifest, according to the combination or alteration of poisoning by the deleterious products or their antagonistic action." Inconstancy and fluctuation are therefore often characteristics of septic processes; especially is this true in pyæmia.

No doubt explanation must be largely sought in difference of chemism. But this is as yet a very hazy theme, notwithstanding the remarkably broad statement made by Dr. A. M.

Brown and quoted by Aitken: "(1) Poisoning by the 'extractives' is attended by hyperthermia; (2) poisoning by the 'animal alkaloids' is accompanied by hypothermia," etc. To this, in a letter to me, Prof. Vaughan says: "The statement is very unfortunate, and is not true. The term 'extractives' is too indefinite to discuss. That 'animal alkaloids' are characterized by the production of hypothermia is not true is shown by a number of facts entertained in our work on 'Ptomaines,'" etc. (As illustrations see the work of Vaughan and Novy, pp. 121–123 and 140–141, second edition.) However, this has no practical bearing with us. After all, we must have recourse to discrete symptomatology; it alone can guide us in each particular septic processs. Hence we must always carefully but promptly consider every single diagnostic detail, since so much depends upon a *proper* and *early* diagnosis. The advancement of bacteriology and physiological chemistry, which go hand in hand, will finally triumph, and do a vast deal to elucidate and eventually lead us to a correct and satisfactory conception of sepsis.

The treatment of septic processes may be told in one word; it is *antisepsis*. This means that we should strive to overpower these pathogenic invaders. This is not so easy in practice as it would seem in theory. After pathogenic microbes have gained entrance into the body it is more difficult to destroy them than when only in a wound. We are generally able to prevent wound diseases by an antiseptic and aseptic operation and by antiseptic dressings, since in that way we shut off the natural and only mode of entrance into the wound; but it is quite otherwise when we have once to deal with systemic infection and intoxication, as no drug has yet been suggested in any one of the septic processes that proves at all times fully efficient as well as harmless; the internal use of bactericide agents being very unreliable and occasionally injurious to the body. Our present know-

ledge of the intimate nature of sepsis and of the doctrine of immunity would seem to suggest that, so far, our chief reliance must depend upon cleanliness, cheerful and hygienic surroundings, upon proper nutrition to reinforce the tissues in their defensive powers, and upon elimination to drain the various toxines from the system through the different emunctories.

Hence, since within favorable environment every specific germ produces its own characteristic poison, and each poison its own characteristic effect, it is very important and desirable that the standard vitality of structure and adequacy of function, not only of larger organs, but of every solid and fluid tissue, of every individual component cell and its protoplasm, be well maintained. On these conditions depends our safety, because within them is vested the power to check invasion and the progress of micro-organisms.

DISCUSSION.

DR. C. A. L. REED:

While the subject of sepsis is a theme receiving much attention in the deliberate bodies of our profession, it cannot be gone over too frequently, nor can it be discussed too frequently with the pointed emphasis given to the salient points by the essayist this afternoon.

The little sketch that was given by him of the origin of an epidemic of puerperal septicæmia in the community is one with which those who are engaged, like myself, in that particular department of practice, become all too familiar. That is not an isolated circumstance. But the misfortune is that not in every community do we find the intelligent interpretation of those phenomena, as we have had it presented this afternoon.

When we can arrive at a realization of the infective power of these germs, when we can understand their order of primary development, and then understand how to deal with them and prevent their propagation and transportation, or their transportation by other media, then we are indeed in a position to practice effectively those principles of preventive medicine the mastery of which should be the great ambition of our profession.

Every person engaged as I am, indeed, every person engaged in general practice, becomes at some time or other the observer of the phenomena of constitutional sepsis of a sort of auto-origin, originating within the patient, not from the absorption directly from the pus cavity or original seat of suppuration, but a secondary absorption taking place from the field of operation. Happily these instances are diminishing in frequency, but still they occur.

Now we trust that the bacteriologists will sometime offer us an explanation of the apparent difference in virulency between those germs taken up from their original seats of suppuration, and after they have been introduced from some other point. There is another thing: virulent as may be the phenomena following the infection of a patient from the accident of an operation, still more virulent are the phenomena of sepsis as manifested in secondary inoculation.

I have frequently when operating in a pus cavity, wounded my finger with a needle, and I have always been apprehensive of serious results. I have never experienced them. I have seen other operators sustain a similar accident and suffer consequences entirely out of proportion to the injury. Why it is that one individual escapes serious consequences while another experiences such disastrous results? There comes in the personal equation; the individual must be taken into account. I trust that investigations will be prosecuted along the line that has already been mapped out in the paper, to the extent of enabling us to determine when we may consider ourselves in the condition to go out and battle with this enemy liable to invade us at any moment.

DR. PETER:

It is true there are such so-called autogenetic poisons, of which Dr. Reed spoke, known as leucomaines. They are solely formed by the bio-chemical action going on within the living body. Otherwise, organic material could not be transformed into toxic products, except by the action of bacterial life actions. Organic substances may be oxygenized but toxic products are not therefore formed. If you take an aseptic piece of flesh, and lock it up in a germ-free space, it will always keep. We know that in the far west on the plains, fresh meat placed in sacks and hung out on a tree will keep much longer than in the inhabited east; no doubt the air is much purer, not laden so much with germs there, than it is here.

TREATMENT OF ORCHITIS AND EPIDIDYMITIS.

BY O. HASENCAMP, M.D., TOLEDO.

When it is convenient for the patient, or the severity of his case demands that he rest in bed, the scrotum should be supported on a pillow or on a support placed across the thighs. At the beginning of the treatment, a good saline purgative should be administered, preceded by a large dose of calomel if a *very active* purge is needed.

If there is much constitutional disturbance antiphlogistic remedies should be given. Tincture veratrum viridi will reduce the heart's action. Acetanilid or phenacetin is useful to reduce the temperature, and also relieve the pain to a certain extent. Aconite and antimony are also useful. Phytolacca and pulsatilla are said to have a specific effect in this disease. Bromide of potash and opium are sometimes needed for rest and relieving pain.

Local applications play an important rôle in the treatment. They relieve pain, and are as necessary to hasten a cure as constitutional remedies.

Electricity is the best remedy we have in the treatment of these troubles, and one advantage is that it can be used in connection with other methods of treatment. The *galvanic current* should be used, the positive pole fitted with a cup or large sponge electrode, applied over the enlargement, and the negative pole over the abdomen or along the upper part of the spermatic cord, using from six to ten milliamperes for five or ten minutes at each treatment, which should be given ***at least once*** daily until relieved, using a suspensory bandage

to support the testicle. This method is painless, and pleases the patient best, because he is not obliged to leave his business. I have seldom found it necessary to order the patient to his room or bed. The trouble is generally relieved in from three to five days, and I have not had suppuration in any case of orchitis or epididymitis treated by electricity. Electricity, though most useful in acute and simple chronic cases, is also very beneficial in enlargements caused by syphilitic and strumous conditions, but constitutional treatment is, of course, necessary.

The application of *cold* is very useful in most cases. Orchitis due to metastasis is treated by hot fomentations. In old and feeble subjects, when the circulation is poor, *hot* applications should be used in preference to cold. Cold can be applied by the ice-bag, Leiter's coils, cloth dipped in ice-water, or cold evaporating lotions. To get the best results, cold should be applied as early in the disease as possible.

In cases where there exists great pain, swelling or tension, local blood-letting or scarification may be resorted to; also painting with a strong solution of nitrate of silver (ninety grains to the ounce). If there is fluid in the cavity of the tunica vaginalis a small trocar can be used to allow the fluid to escape. Pressure by the elastic bag, or strapping with plaster, sometimes gives relief, but it is very troublesome, annoying, and of doubtful utility.

A treatment for epididymitis which has proven successful in my hands, although I have used it only a limited number of times, was given in a paper read by Dr. G. E. Brewer before the American Association of Andrology and Syphilis upon the "Treatment of Epididymitis," and published in the *Philadelphia Medical News*, October, 1891. He called attention to this method of treatment that he had found very useful in both acute and chronic cases of this disease: The inflamed organ is covered with a thick layer of cotton wool, which is surrounded by a layer of rubber tissue, extending

beyond the wool to the healthy skin of the scrotum; a gauze bandage is next firmly applied, and the whole is kept in place and supported by a suspensory bandage. It relieves the pain promptly, and has a marked influence in promoting the rapid dissipation of the inflammatory induration.

In syphilitic orchitis specific constitutional treatment should be given in connection with local treatment; in malarial subjects quinine should be administered; rheumatic patients should be given the salicylate of soda in ten-grain doses every four hours.

The diet should be light, principally milk, and animal food should be avoided. Tonics and alteratives should be used in the later stages of the disease, and with hygienic measures will be of assistance in completing the cure.

THE RATIONAL TREATMENT OF TYPHOID FEVER.

BY F. W. LANGDON, M.D., CINCINNATI.

The subject of fever—in its general aspect—has been deemed worthy of so much labor and study on the part of the physiologist, the pathologist and the clinician, and is of such practical import to all who practice our art in any of its branches, that no apology is necessary, I trust, for bringing one of its numerous phases before this society for consideration.

Looking at its most constant and evident symptom—the pyrexia—the physiologist points out, and the pathologist and clinician confirm the probable existence of heat-producing, heat controlling and heat dissipating areas, situated in the central nervous system, and influencing by their abnormal action the production of this particular symptom.

That the pyrexia, however, does not constitute the disease is quite evident, since it may be absent, controlled or even eliminated, and yet the patient be far from well.

While, then, we are in ignorance, to a considerable degree, respecting the ultimate nature of the pathological phenomena in general, we may accept as true, the dictum of Fordyce in his classic "Treatise on Fever" (p. 16), that it is "a disease of the whole system in every kind of sense;" in other words a general disturbance of the entire organism, having for its prominent and most common symptom elevation of the body temperature. It is unnecessary for the purpose of the present remarks, to discuss in detail questions

relating to etiology, pathology, clinical history, or diagnosis of typhoid fever: suffice it to say, by way of introduction to the subject of treatment—that I accept the hypothesis of its bacterial origin, as being more in accord with observed facts than any other; the media of conveyance of the bacteria to the human subject being contaminated water or milk—perhaps occasionally raw vegetables, fruits and dust.

I do not believe it results from foul gases of any kind in which the typhoid bacilli are absent. I would as soon expect an apple tree to develop from April showers and sunshine!

The fact that the source of infection is not always traceable, or that cases occur sporadically, in isolated localities and individuals, does not, to my mind, militate against the bacterial hypothesis. When the mycologic botanist shall have mapped out the normal geographical distribution of the various bacterial organisms, with as much certainty as his brother now outlines the limits of the oaks, the pines and the grasses—then we may be enabled to account more definitely for the occurrence of these apparently inexplicable cases.

As regards the pathology, it seems to me probable that the bacilli enter the body through the alimentary canal; that they here proliferate and give rise to the production of one or more ptomaines; which, absorbed and distributed through the blood and lymph streams, cause the wide-spread impairment of function and structure which characterizes the disease.

Further, that in certain of the more active lymphatic structures of the small intestine (Peyer's patches and solitary glands) the bacilli themselves gain access or are absorbed; that their proliferation here gives rise to thrombosis with resulting necrosis, thus producing the well-known phenomena of tumefaction and ulceration of these organs.

Respecting the pyrexia, I regard it as probably the reaction to irritation (by the ptomaines) of nerve centres concerned in the thermo-genesis, thermo-taxis or thermo-lysis.

Other nervous symptoms, *e. g.*, muscular and mental delirium, coma, arythmic circulation, neuralgias, pareses and paralyses, are very likely produced by the same toxic agency, acting at times centrally, again peripherally and often reinforced or intensified by retention of excretory products of tissue metamorphosis.

Respecting diagnosis it is sufficient to say, that typical cases are unmistakable to the experienced observer, while atypical ones are often extremely puzzling, and the patient must be given the benefit of the doubt, a diagnosis being arrived at by exclusion.

Of the *indications* for treatment it may be said that they are no less than five in number, viz.:

1. To sustain the patient.

2. To remove or abate the cause of the disease so far as practicable.

3. To avert, control or alleviate dangerous or distressing symptoms and complications (*e.g.*, headaches, insomnia, neuralgias, high temperature, intestinal hemorrhages and perforation, bronchitis, pneumonitis, cardiac degeneration, thrombosis, abscesses, etc.).

4. To promote removal of products of tissue oxidation by excretory channels, skin, kidneys, lungs, bowels.

5. Prophylaxis.

The *measures* by which these indications are fulfilled to a greater or less degree may be considered under two heads, namely:

1. Hygienic and prophylactic.

2. Therapeutic.

With respect to the former there is a general consensus of opinion which does not pertain to the latter. Given a well-ventilated, sun-purified room, two beds, elastic and neither hard nor soft, a nurse who is discreet, observing, and above all, obedient; add a well-selected liquid diet containing a minimum of nitrogenous principles and the typical conditions

of hygiene are fulfilled. Without these therapeusis is likely to be a "delusion and a snare" whatever may be the particular plan of treatment adopted.

Respecting *plans* of therapeutic treatment, the most prominent requiring notice are:

1. The *expectant* or symptomatic plan, which has been uncharitably called the nihilistic plan, in that it abolishes all attempt to treat the disease and confines the treatment to individual symptoms.

2. The *antipyretic* plan, which by hydro-therapeutic or medicinal measures addresses itself entirely to keeping the pyrexia within certain limits.

3. Antimycotic or anti-zymotic plan, *e.g.*, calomel treatment, called "specific" by Liebermeister and others; the carbolic acid and iodine treatment of Bartholow, Wilson and others belongs in this category.

The *expectant* plan, of treatment makes no attempt to eliminate or abate the activity of the cause; hence I reject it as unscientific in theory and unsatisfactory in practice as compared with other methods.

In the light of our present knowledge of bacteriological chemistry, I would about as soon think of treating a case of syphilis or of diphtheria, or an abscess on the expectant plan as a case of typhoid fever. Even in mild cases, running an apparently favorable course, I think it probable that a judicious therapy directed to the cause may often lessen complications and the tendency to relapse. The *expectant* plan is comparable perhaps to an attempt to sail a rudderless ship through a narrow and dangerous channel, "expecting" to strike some rocks, but hoping with the aid of the pumps and favorable winds to guide the vessel safely into port. Far better, to my mind, is the adoption of some kind of temporary steering apparatus, even if imperfect, whereby as many rocks as possible may be avoided.

The *antipyretic* plan of treatment has been strongly

advocated and statistically supported, especially the "cold bath" (64° to 68° F.) method of Brand. Objections to it are its impracticability outside of hospitals—and the fact that it is not devoid of danger from shock or fright in some cases. It undoubtedly has merit aside from mere antipyresis, as, for instance, in favoring elimination of toxic matters, products of retrograde metamorphoses, etc., through the cutaneous emunctories. As warmer water (80° 85°F.) would be at least equally efficacious in these respects and less objectionable in others, a comparison of the two on a large scale would be very desirable.

We may concede to hydro-therapy, therefore, a useful position in the symptomatic treatment of the disease. As regards antipyretic treatment by drugs, it is undoubtedly useful within certain limits, in cases where the pyrexia is a special element of danger, but is at least uncalled for in the average typical case.

It must be conceded also that there is no absolutely safe antipyretic applicable to all cases; nor need we look for one, since the value of remedies bears a direct relation to their power over the organism, and power usually means power for evil as well as for good, according to its manner and place of use. In other words, most remedies which diminish temperature are, in one sense, protoplasmic poisons, the difference between them being mainly in the intensity of effect on different tissues.

Antipyretic treatment therefore, is to be regarded as a choice between two evils; it may serve a useful purpose by putting on the brakes to slow excessive speed, but care must be taken that it does not stop the train or throw it off the track.

It may not be out of place here to call attention to the fact, that in one class of cases characterized by excessive pyrexia and extreme feebleness of pulse, with ataxia and great rapidity (150–160 and upwards), extreme caution

should be exercised in the use of antipyretics as such. In these cases it has seemed to me at times, that the thermotoxic or heat coördinating centres had "lost their grip" over the heat producing centres, the natural brakes are taken off and the machinery of heat-production is running wild, like an engine without a governor. Here the indications are plainly to avoid all depressants and support the controlling nerve centres by digitalis, strychnia, trinitrin and alcohol, pushed boldly to their physiological limits. To sum up the position of the antipyretic treatment, either by hydro-therapy or by drugs, it may well fulfill certain symptomatic indications but is to be criticised in that it does not meet the rational indication for removal or abatement of the cause.

Thirdly, the antimycotic plan of treatment claims our attention. Here may be placed the calomel treatment (after the "specific" plan of Liebermeister and others), where eight grains are administered three or four times a day for two days, *before* the ninth day of disease.

The carbolic acid and iodine treatment of Bartholow and Wilson are also steps in the direction of antimycotic therapeusis; and the same may be said of the use of turpentine, naphthaline and other agents.

Of the calomel treatment in the dosage mentioned it may be said that it is unnecessarily heroic; but it is a well-known fact that many practitioners of large experience and excellent judgment place great confidence in the continuous administration of calomel in small doses (gr. $1/8$ to $1/4$) three or four times daily throughout the disease. Such favorable opinion, based on wide experience and arrived at simultaneously by so large a number of competent observers, should not be disregarded; and viewed in the light of modern bacteriological science is to be looked upon as a therapy addressed to the cause; and this is true whether we regard the calomel as a chologogue or as a factor in the production of bichloride of mercury—in either event, intestinal antisepsis is favored.

As the chemical reaction necessary to produce the bichloride salt is at least uncertain during the febrile state and the chologogue action perhaps equally so, I have been lead to think favorably of the administration of the bichloride itself direct, with a view to intestinal antizymosis; and the results attained have appeared to me so satisfactory that I have been requested to place the treatment on record before this society with a view to its more extensive introduction into practice.

While occasional references to this method of treatment have appeared in the journals, I cannot at present recall dates and authors.

My first extended experience with it was during the typhoid epidemic of 1887–8 in Cincinnati, when I administered it to about thirty-five consecutive cases. Of these, the only fatal case was in a young man who walked into my office, having had a free intestinal hemorrhage, and following it, had ridden twelve miles in a buggy. He died in four days with repeated small hemorrhages and profound nerve-toxic symptoms. Owing to the more urgent need of attention to hemorrhage and other symptoms, he did not receive the bichloride treatment; hence the record of the bichloride treatment during that epidemic stands thirty-four cases without a death. Since then my record is sixteen cases with no deaths, making a total of fifty consecutive cases without fatal result.

My experience with this plan of treatment has been eminently satisfactory, though I have seen relapses occur two or three times. I have been led to think that relapse was favored by too early discontinuance of treatment, and have, therefore, adopted the plan of continuing the bichloride for a period of ten or twelve days following the subsidence of pyrexia, with a view to the prevention of auto-infection. I have had no accidents, such as ptyalism; nor diarrhœa other than that due to the disease. The remedy is administered in

glycerin and water, or simply in a tablet—$^1/_{24}$ to $^1/_{12}$ gr., being taken three or four times a day.

In this connection I would repeat what I have already said(1) of the bichloride salt, viz.: that it is "in one sense the most certain antipyretic known to me." By this I do not mean that it is a suitable remedy to quickly reduce a dangerous temperature, but that in that indefinite class of fevers variously diagnosed as remittent, or as typho-malarial and conforming to no typical form, I have repeatedly seen the temperature diminish from day to day, without reaccess of the fever and with corresponding improvement in the collateral symptoms, under the use of the bichloride salt in $^1/_{24}$ to $^1/_{12}$ gr. doses three to six times a day. "I believe that it exerts the same controlling influence in many cases of typhoid and may even shorten the natural course of the disease without risk to the patient."

How this action is brought about, unless by the limitation of ptomaine formation in the intestine, I am unable to surmise.

To summarize what I would take the liberty of calling the "rational" treatment of typhoid fever—it should combine the good features of the antimycotic, the antipyretic and the expectant or symptomatic plans:

1. It should *sustain the patient*, by ventilation, quiet, and careful nursing; a diet of liquids only, and containing a minimum of nitrogenous principles, *e. g.*, milk, boiled to prevent possible danger of adding infection to infection, and slightly thickened with well-baked wheat flour, to prevent formation of large curds in the alimentary canal, as well as to add to its dietetic value. Broths (not beef tea), malt preparations, alcohol, pure water in abundance, fruit juices, clam juice, koumiss and buttermilk when they agree.

2. Attempt to remove or abate the cause so far as practic-

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1 *Cincinnati Lancet-Clinic*, Nov. 21, 1891, p. 673.

able by the administration of remedies which tend to favor intestinal antizymosis, preferably the bichloride of mercury in $^1/_{16}$ gr. doses three or four times a day.

3. Symptomatic treatment as indicated in the individual case.

4. Promote removal of products of tissue oxidation, "the ashes of the fire," by attention to the skin, kidneys, bowels and lungs.

5. Secure prophylaxis by boiling all soiled linen and bedding, and disinfecting stools and urine with corrosive sublimate, or sulphate of iron solutions.

In my opinion the plan of treatment which best meets all the indications mentioned, recognizes the modern advances in the pathological, bacteriological and chemical sciences and conforms to the requirements of a rational therapy.

DISCUSSION.

DR. S. P. KRAMER:

We all know the great danger of infected drinking water with reference to typhoid fever. But those who have been working in this field know how difficult it is to establish a proof that the bacilli exist in a given water; there are many germs in good drinking water which are non-pathogenic. We have in methylene blue an agent which has added a great deal to our knowledge in this regard. It has been found that if methylene blue is added to the culture soil in the proportion of 1:3000 it prevents the appearance of all the lower forms except the typhoid bacillus, leaving the culture soil free for that germ to grow. In this way the typhoid bacillus has been demonstrated in a number of cases where it has heretofore been impossible to detect it. In regard to the antiseptic treatment of typhoid fever it may be said, that we have to-day no antiseptic which can be introduced into the human body with sufficient concentration to destroy the bacillus; nor if this were possible, have we any antiseptic which would not affect the tissue equally, if not more, than the bacillus itself. This is true even of the aniline dyes. The clinicians have however reported good results from the use of various antiseptics, and I suppose that the manner in which these drugs operate for good, if they do so, is by inhib-

iting the lower forms of fermentation, thus preventing the production and absorption of toxines resulting from such fermentation.

THE PRESENT STATUS OF OBSTETRICS AND GYNECOLOGY.

BY CHAUNCEY D. PALMER, M.D.

In 1878, I delivered the address of the Alumnal Association of the Medical College of Ohio, on the subject of the "Present Status of Gynecology, and its Relations to General Medicine." This was nearly fifteen years ago. It has occurred to me that there is no subject for me better adapted for a society of this kind, composed of gentlemen of almost all ages and specialties of medicine, of the great state of Ohio, than this very same one.

What is *the* present status of obstetrics and gynecology? No one will for a moment say that it is what it was fifteen years since. What it will be fifteen years from now, is only a matter of speculation. To the thoughtful inquirer, it is plain that the relation of obstetrics and gynecology to general medicine is a most intimate—an inseparable one. The idea that a physician may practice gynecology in its exclusive sense, without a knowledge of the diseases of the body at large, or with a disregard of the general bodily conditions, is one of the most absurd and dangerous doctrines. There is comparatively little gynecology outside of the domain of general medicine; on the other hand, there is scarcely a disease of the general system, in the female, of any considerable importance, or duration, which does not affect the circulation, the innervation, and the functions of the pelvic organs. We venture the assertion, and challenge its successful contradiction, that no disease or class of diseases in the economy, set

up more decided disturbances or complications at large than those of the female pelvic organs.

Medicine, although made up of parts, is really one. The whole stands by a linking together of all its parts; a separation of any link implies a break in the whole chain. Gynecology has suffered not a little by this exclusivism of our times. The extreme surgical tendency of some has brought us an unmerited disrepute. Pelvic diseases must be learned by studying medicine in its entirety. Few constitutional diseases, or even local affections of distant organs of the body, exist that we do not see, in women, some peculiar expression of the same in the sexual system. The various states of a changed constitution of the blood, the so-called diatheses and cachexiæ, as anemia, hydremia, leucocythemia, scrofula, phthisis, rheumatism, gout, syphilis, scorbutus, eczema, chronic malaria, almost invariably, unfortunately too rapidly, first disorder menstruation, and finally produce organic changes in the uterus. A neurotic habit, evidenced by attacks of general neuralgia, is accompanied by a neuralgic dysmenorrhea, as is also such a condition a very important factor in the causation of other pelvic affections.

Again, pregnancy, more particularly the lying-in-state, tests the soundness of a woman's constitution. Any imperfection of her system, any blood taint, although hidden, is apt to manifest itself at this time. Pelvic cellulitis, we have noticed, has, at times, an etiological constitutional factor; so have mammary inflammations. An enfeebled general health, a disease prior to marriage, present, though latent, frequent child bearing, prolonged and excessive lactation, and many other general causes make a woman liable to, and perpetuate sub-involution, hyperemia of the uterus, with displacements, diseases and complications, from which she would otherwise be exempt. Many of the well-known exciting causes utterly fail to bring about a local disease, without some constitutional morbific force operative in the back-ground. In this way, a

discovery of one's actual constitutional standard of health is revealed.

Many of the chronic diseases of the uterus, are chronic only, in virtue of a diathetic taint, a general imperfection or depreciation of the general health. *Therefore*, that local diseases of the female pelvic organs require only a local treatment, is a pernicious doctrine, wrong in theory, dangerous and criminal in practice. A gynecologist can not be a skillful physician without a knowledge of medicine in general. It is necessary that he diagnosticate, know the cause and proper management of diseases in general. Constantly arising in his special practice, they influence and complicate the acute and chronic conditions, for which his services are sought. In turn, while it is not to be expected of the general practitioner that he will differentiate uncommon and obscure pelvic affections, or perform special operations in this field of practice, it is expected that he will understand the importance and significance of symptoms here arising, and the general management of the diseases they express.

Volumes might be written on the influences of civilization and modern culture, with its fashionable surroundings and entanglements, modifying the diseases of women. Unquestionably, both sexes do not have a few of the physical ailments of a generation since, but it remains a seriously debatable question, whether women now-a-days do not have many of their diseases more frequently. I believe they do; and look upon it as a penalty of our modern methods of living.

Local medication of the uterus is certainly better understood now than it was fifteen years since.

There can be no question as to the propriety of local treatments, but an ailing woman, afflicted with a disease of her sex, must be at the mercy of the good judgment of an honest physician.

When to medicate, *when not* to medicate, the uterus, *how*

often, and *with what*, are questions to be answered only by a studious, progressive practitioner.

Fluid applications to the uterus have now a diminished field of utility. Intra-uterine medication can be made less painful, less hazardous, and more efficient. Potential cauterization of the uterus is now much less frequently employed, and the use of the inevitable *nitrate* has almost became a relic of the past. Who can doubt that we better know how to treat endometrial affections than we did? That the endometrium is rather a glandular, than a mucous tissue, is recognized.

Gonorrhea, it matters not how contracted, as a causative factor in many female pelvic diseases, has a hitherto unrecognized significance.

Massage, as a therapeutic agent in gynecology, is well appreciated, to say naught about the local massage after Thure-Brandt. Electricity as a therapeutic agent never received such attention. Apostoli has been, and is, an enthusiastic, painstaking, progressive worker. His enunciations have been seconded by careful, observing men all over the world, and he is considered not altogether a misguiding leader. Competent judges in gynecology say we must use discretion in the selection of cases, in kind, and localization, if we do good with galvanism for fibroids of the uterus. There is really no contention between electricity and surgery, in gynecology. Each has its place and field of application, hence usefulness. Unmistakable benefits result from electrical treatment in certain chronic pelvic inflammatory exudations, uterine versions and flexions, as well as for some of the uterine inflammations.

We know little more concerning pelvic cellulitis and pelvic peritonitis than has been so clearly and reliably announced by Bernutz and Goupil, in 1857. But our acquaintance with the diagnosis and operative cure of diseases of the Fallopian tubes is only of rather recent date.

The gynecological world has had its craze for *cervical splitting*, its *trachelorrhaphy craze*, its *pessary craze*, and now it is having its *tube craze*. We need but a few years for this Fallopian craze to settle down on a more rational basis. A more clear and thorough elucidation of the diagnostic signs of pregnancy, *intra-uterine* and *extra-uterine*, have occurred in recent years. A recognition of early pregnancy, depends usually, not on one symptom, or group of symptoms, but on a pains-taking analysis of the sum total of evidence, in a given case. The most conclusive evidence is found within the pelvis, in the *size*, the *shape*, and the *consistency* of the uterus and surroundings; no sign, but the collective evidences of all signs being considered. Many mistakes in the diagnosis of pregnancy are avoidably and unavoidably made. It would be well to suspect the possible existence or co-existence of pregnancy, in every female we are examining, who is from ten to fifty-five years of age.

One of the most important advances of medical and surgical gynecology, has been the recognition of *bacteria* in producing certain morbid processes. How many cases of endometritis and salpingitis, we know are septic, in there origin? Consider the diminished and diminishing mortality rates in modern obstetric practice. One death in one thousand cases of parturition, in Paris, and none in as many cases in Preston Retreat, in Philadelphia, would have astounded our predecessors. So much for improved aseptic and antiseptic precautions. We have come to understand that sepsis, not traumatism, is the danger element in obstetrical and gynecological practice. How many intra-pelvic diseases of women may yet be stamped out by further bacteriological studies?

We know now how to employ the uterine curette, a most valuable instrument, calculated to supersede much intra-uterine medication, so that its ills may be reduced to a minimum, another proof of modern antiseptic evolution.

Pessaries, we are not as yet ready to dispense with, although their use has been judiciously greatly abridged. Some hitherto regarded incurable uterine displacements have been made amenable to medical and surgical treatment. Vesico and recto-vaginal fistulæ, cervical lacerations, vaginal and perineal ruptures are now regarded as largely preventable, and their best treatments are prophylactic and immediate. Stitch-hole abscesses, abdominal herniæ and fecal fistulæ can generally be avoided.

The greatest improvements in modern surgical gynecology and obstetrics, we owe to Semmelweiss and Lister. A greater revolution, at any time, never occured, than these men have been the agents of originating. Recent years have brought their harvests of returns to these benefactors. In no direction has gynecology grown in recent years as in the surgical. Compare the most excellent work of Greig Smith of to-day, with the gynecological surgery of 1856. In 1855, Spencer Wells wrote a small book on the diagnosis and surgical treatment of abdominal tumors. Is ovariotomy justifiable? was the question then. Now, everyone advocates its performance, and that too, early. In recognition of the grand work which has been done for this otherwise incurable disease, witness the operations on the liver, the gall bladder, the stomach, the spleen, the kidneys, the intestines and other abdominal structures. *Section*, *peritoneal irrigation* and *drainage* have revolutionized abdominal and pelvic surgery. It is impossible to practice gynecology without a resort to surgical procedures. Such is the causation and nature of many of the gynecological diseases that surgical operations for them are a *sine qua non*. Modern gynecology has made its most wonderful advances by surgery. Extra-uterine gestation, uterine cancer, some kinks of uterine displacements, and otherwise unrelieved uterine fibroids, testify. Not only has vaginal hysterectomy had established for it a proper place, but thorough *supra-vaginal hysterectomy* is destined to be the

operation, if any, for certain, not all, uterine fibroids. No real contest can exist between high amputation of the cervix uteri and complete vaginal hysterectomy, for uterine cancer.

More than my allotted time has been consumed in praise of what gynecology has done and will do. Many pages might be written concerning modern gynecological abuses. Every department of medicine and surgery has been subject to abuses. Intra-uterine medications, the Emmet's operation of trachelorrhaphy, Sim's operation of cervical discission, Battey's operation of oöphorectomy, and not a few other operations by laparatomy, and vaginal hysterectomy, have each and all been abused. No intelligent, rational physician will, for a moment, attempt to assert that these surgical procedures have no place in practice, and should be ignored. Well would it be, if every medical man would carefully consider the supposed curative effects of operations *per se.* Medical records are full of them. The psychical influences at work are, at times, a most interesting study. The power of the body, especially the pelvic organs, upon the mind, is ever to be held in view. Always endeavor to avoid developing a neurosis, through introspection, especially in mobile patients.

The modern tendency of to-day, is to make many of the female pelvic operations on a very small pretext—made unnecessarily, either for life, comfort, or the preservation of health. Many of the well-recognized failures of oöphorectomy have followed operations done for hystero-neuroses, under a mistaken diagnosis. Doleris claims that four-fifths of the oöphorectomies done in Paris, have been unnecessary. How many times unnecessarily in this country, no one can tell. Notwithstanding all the drawbacks and abuses gynecology has encountered, the young science and art applied have relieved many a suffering, helpless woman, prolonged many a helpful life, and saved from the grave many a worthy, noble companion, for usefulness, otherwise unhelped.

THE IMPROVED CÆSAREAN OPERATION: WHEN AND HOW TO PERFORM.

BY GUSTAV ZINKE, M.D., CINCINNATI.

On an occasion like the present, one of the chief merits of an essay is brevity. Therefore nothing will be said as to the history of the old or "classic" operation, nor of the evolution of the modern Cærarean section as formulated by Sänger, of Leipzig. To Sänger alone are we indebted for the perfection of the modern method of performing this operation, notwithstanding that many points of detail in its execution have come from other distinguished operators.

The operation itself stands unchallenged; but its range of application and usefulness is still open to discussion. It is the object of this paper to define, if this be possible, its sphere of propriety, and to illustrate the operation by drawings and upon a manikin constructed for that purpose.

The axiom, "When there is such defective proportion between the child and maternal passage that even a mutilated fœtus cannot be extracted," is tenable only to some extent because the mortality rate of the "improved" Cæsarean section has fallen far below that of craniotomy, cephalotripsy and evisceration. Thus the new method of performing this operation has, of necessity, assumed a much wider scope of application and utility than the "old" Cæsarean section ever possessed. This cannot be denied. But it must be admitted that, because of the glorious results obtained by the "Sänger method," there is (judging from recently reported cases and the adverse criticism that followed their

PLATE I.—Abdomen exposed and ready for the abdominal incision.

publication) a disposition on the part of some enthusiasts to overstep the line of proper limitation of the operation and, on part of the more timid, to remain too far this side of the line of "safety," and thereby expose the mother to far greater risks than the improved Cæsarean section would imply.

In considering the question: *When are we justified to perform Cæsarean section?* we must remember that the operation has ceased to be one of necessity alone. Viewed in the light of its improvement and the wonderful results obtained by it everywhere, the operation has distinctly become one of election. The days of embryotomy, upon the living fœtus, are passed; and he who would remain inactive by the bedside of a woman who cannot deliver herself, or would resort to repeated needless efforts at delivery by the forceps or otherwise, until the child is dead, can hardly be considered as one doing justice to the art of obstetrics, much less to his patient, unless he was compelled to stand idly by because of refusal to submit to the proper procedure by the mother, her husband, or both.

The dogma of the church, the school and of fashion should no longer fall in the scale between embryotomy and Cæsarean section. Our duty is plain, and can only be frustrated by the obstinacy of the mother, or her friends, who, by refusal, become responsible for the death of her offspring.

In order to arrive at a satisfactory conclusion as to *When is the Cæsarean section justifiable?* we must view the operation from two points, namely: (*a*) *When the operation is an absolute necessity*, and (*b*) *When it is an operation of election.*

(*a*) *Cæsarean section is imperatively indicated in all cases in which, by reason of disease or malformation of the pelvis, the parturient canal is obstructed to a degree that even a mutilated child cannot be delivered through the same.* This condition may be brought about *osteomalacia*, *rickets*, *tumors*

springing from the pelvic wall, from the ovaries or from the womb itself, as well as from *advanced carcinoma* of the cervix. All obstetric authors have attempted to fix a certain limit of contraction as caused by *mollitus-ossium*, *rickets*, and solid *tumors* of the pelvic wall. They are variously stated, and range between two and one-half and one and one-half inches of freedom in either the conjugate or transverse diameter of the inlet. But even a degree of contraction coming within these limits, was looked upon as only a relative indication justifying the "classic" operation, which always had a fearful record of mortality; and embryotomy, by which more mothers were then saved, was preferred, and many times successfully performed in cases in which the conjugate diameter of the brim amounted to not more than one and one-half inches. Hence the operator had the right to choose between Cæsarean section and embryotomy, and elect the latter even when the child was still living. The same rules governed the accoucheur, up to a recent date, when tumors were the obstructing element. These rules, fortunate for the present and future generations, may safely be abandoned. They belong to the past, and will never be revived so long as the present improved Cæsarean section is known. Its mortality, I believe, is less than 20 per cent. of all cases reported up to this time, and less than 8 per cent. in the hands of the more experienced operators, such as Leopold of Dresden.

Of carcinoma of the cervix, as a positive indication for the operation, not much need be said. When the disease is once established beyond a doubt, dilatation of the os is impracticable, if not impossible; and, as the mother is already doomed to die of an incurable disease, no other course should be entertained than to perform the Cæsarean section. Thus it may be approximately stated that the positive indications for the operation are:

1. When the conjugate or transverse diameter of the brim

is contracted to two and one-half inches and less, and the child still living.

2. When the same diameters of the brim are contracted to less than two inches, and the child known to be at term and dead.

3. When solid tumors, which cannot be removed, obstruct the pelvic canal to a degree which prevents the birth of a child, living or dead.

4. When carcinoma of the cervix involves all of the portio-vaginalis.

5. When the uterus is ruptured with or without the escape of the child into the abdominal cavity. (Gastrotomy with stitching of the uterine wound, or possibly a complete extirpation of the uterus, may here be indicated, according to the condition of the womb, the amount of pelvic contraction, and the vitality of the mother).

When is the improved Cæsarean section an operation of election? This question is not so easily defined as it, at first, might seem. Why? Because the merits of this operation have, as yet, not been fully determined. Many of the hysterotomies performed under the modern method have been done as a dernier resort, namely, after long delay and repeated futile efforts at delivery by the forceps and turning, during which the maternal soft parts have been injured, rendered septic and the vital powers of the mother exhausted; thus producing a condition of things, the fatal effects of which are apt to be credited to the operation, and hence unjustly increase its record of mortality. Robert P. Harris, who has helped so much to bring the art of obstetrics to its present high standard of excellency in America, especially in reference to the improved Cæsarean section, asks and answers the following questions:

"Shall the Cæsarean section be performed when the indications for it are not absolute and positive?"

"If by fœtal destruction the mother can, in all probability,

be saved, is it a justifiable act to run the greater risk in order to save the child?"

"Are the wishes of the parents for a living child to be considered in deciding as to the method of delivery?"

"When a premature delivery cannot save a child in a given case, and the mother has already lost one or more fœtuses by craniotomy, is it proper to save the child by an operation in which one out of five or six women have died?"

His answer is: "We think it is, for the reason that such cases generally do better than the average given." We heartily agree with him, and also with Radford(1) who maintains that, "even when delivery by craniotomy is possible, it can be justified on no principle, and is only sanctioned by the dogma of the schools and by usage, and that, therefore, the Cæsarean section should be performed with a view of saving the child."

It must be confessed that the statements just quoted would (not without good reason) have encountered the severest criticism and most summary condemnation by every author of obstetrics, had they been announced fifteen years ago. It will not be a surprise were we to see a great deal of quasi-influential opposition now and then for some time to come. But the fact remains that the present method of performing hysterotomy, by men skilled and experienced, has given results beyond the most sanguine expectation. The maternal mortality rate of Cæsarean section has been lessened to a degree far below that of embryotomy in any of its forms, and what is at least of equal (if not more) importance, most of the children thus delivered have been saved.

Our duty is to save both lives, if we can. Embryotomy invariably implies the death of the child, and the life of the mother is, by reason of the splendid success of the modern Cæsarean section, placed in greater jeopardy.

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1 Playfair (Harris).

Therefore it is, perhaps, not too much to say that, the propriety of performing Cæsarean section should be seriously considered, and looked upon as justifiable under circumstances which, of necessity, involve the loss of the child. These conditions may be:

1. A contraction of the conjugate diameter of the brim to the extent of three inches, in which the head refuses to enter the pelvis; sufficient time having been permitted to admit of moulding of the head; the child still living; the os fully dilated, and the membranes ruptured; the contraction ring visible; the soft maternal parts becoming tender, swollen and dry; abdomen tense and sensitive to the touch; the application of the forceps not feasible, or, if so, extremely dangerous because of injury to the soft parts of the mother, and possible rupture of the uterus; craniotomy or cephalotripsy means death to the child at once, while it does not increase the mother's chances of recovery. Add to this a history of previous delivery by craniotomy, we cannot help but think that Cæsarean section would not only cause the child to be born alive, but, the operation promptly and properly performed, gives the mother a better chance for recovery than embryotomy. The same may be said of:

2. Justo-minor and certain cases of mellitus-ossium; though in the latter, complete extirpation should follow, since it is maintained that removal of the uterus has a tendency to cure this malady.

3. In cases of tumors obstructing the pelvic passages to an extent that a living child cannot pass, Cæsarean section may, for the same reasons, be considered equally justifiable.

4. Impaction of the fœtus has often proved an unsurmountable barrier to delivery, even in otherwise perfectly developed women, and we do not wonder that the complication has been not an uncommon cause of the death of both mother and child, and that, consequently, delivery through the abdomen has, in certain cases of this kind, been

regarded as the safest expediency. These are instances in which excessive swelling of the vulva, vagina and soft parts of the pelvic cavity has occurred, and turning, craniotomy or evisceration are, if not impossible, at least extremely dangerous to the mother. Much might be said of this class of cases. The watchful, scientific obstetrician will rarely observe them in his own practice, but rather meet them in consultation in the practice of the less experienced practitioner or of the midwife. Though much may be done by a skillful hand and with the aid of forceps and of chloroform, we can easily imagine cases in which Cæsarean section may offer the patient, under the conditions just mentioned, the best opportunity to escape imminent peril.

5. Double-headed or double-bodied monsters, as well as hydrocephalus, may give rise to difficulties which can be best overcome by hysterotomy, notwithstanding that in these cases the life of the child does not deserve the same consideration as it ordinarily does.

6. Total inflammatory occlusion of the cervix, as well as great rigidity of the os, and bands of cicatrization of the vagina, have become candidates for Cæsarean section. Only recently Dr. Sligh, of Granite, reported(1) an unsuccessful case of "conservative" Cæsarean section for rigidity of the os complicated by placenta previa centralis; patient in the seventh month of pregnancy. Occlusion and extreme rigidity of the os and cicatrices of the vagina, must be considered as only relative indications for the sectio Cæsarea. That it is possible for an occlusion of the os to take place to an extent that the site of the cervix, or of the os, cannot be detected, or that such a degree of rigidity of the os or enormous cicatricial contraction of the vagina, may exist, which even incisions cannot relieve sufficiently to create enough room for a full grown fœtus to pass, I will not deny. These complica-

1 *Am. Jour. Obst.*, February, 1892.

tions, however, are very, very rare; and when they do occur, will, in nearly all instances, yield to the proper treatment, namely, incision and gradual dilatation. Cæsarean section will be but seldom, if ever, necessary even when the os is totally occluded. If the site of the os is not entirely obliterated, a crucial incision of the same may be all that is required to bring about sufficient dilatation. But these cases will assume a more serious aspect if complicated by placenta previa, or puerperal convulsions, whether it be an occluded os incised, or an os rendered rigid by disease, or a cicatrized vagina. If the life of the mother be threatened by continuous hemorrhage or frequently repeated severe convulsions long in duration, recourse to hysterectomy alone can save the mother, and possibly also the child.

7. Incipient or doubtful carcinoma colli is another relative indication for Cæsarean section. If, however, the diagnosis can be positively established, no matter to what extent the disease has progressed, it then amounts, in my opinion, to a positive sign, which not only demands this operation, but it should be followed by a total extirpation of the uterus at the same time, provided the patient's condition does not forbid a prolonged operation.

The *post-mortem sectio Cæsarea* is not only universally sanctioned, but should invariably be performed in all cases where pregnancy has advanced to a period of viability of the child, or when death of the mother occurs during labor. Notwithstanding that but few children, delivered post-mortem, have been extracted alive, the section should be promptly performed the moment that the mother expires, or as soon as possible thereafter. Out of 107 cases ef post-mortem Cæsarean operations reported by Schwarz, not one child was taken out alive; while of the forty-five cases reported by Duer, forty children were extracted alive. No special time, after the death of the mother has been established, can be fixed as to when the operation is a hopeless or needless undertaking.

Instances are quoted in text-books in which a living fœtus has been removed in this way as long as five, ten and even forty hours after death. These are probably exaggerations, or, as Harris believes, cases in which the mother was really not dead, but in a trance. For this reason he advises that the same care should be used in this, as well as the ante-mortem, operation; for should, during the first steps in the operation, the mother prove to be still alive, no special harm will have been done. Of the forty living fœtuses tabulated and reported by Duer, quoted by Harris, twenty-two were delivered between one and five minutes after the death of the mother; none between five and ten; thirteen between ten and fifteen; two between fifteen and twenty-three; two after one hour, and two after two hours.

PREPARATION FOR AND DESCRIPTION OF THE CÆSAREAN SECTION.

This includes: (*a*) *Preparation of patient, her bed and room in which the operation is to be performed.* (*b*) *What anæsthetic shall be employed?* (*c*) *What instrument and other articles are necessary for the operation?* (*d*) *Best time for operation.* (*e*) *The operation itself*, and (*f*) *The after-treatment.*

Much will depend upon as to *when*, *where* and *how* we find the patient. Whether in the country, town or city; if she be already in the act of labor, and her condition of a character demanding prompt interference, little or no time may be left for preparation. But it should always be born in mind that, an aseptic condition of the mother, the operator, his assistants and instruments, is most essential to success. Whatever little time there may be at our disposal, let it be employed in washing thoroughly with soap and water those parts of the mother's body which are concerned in the operation. The instruments, too, as well as the hands of the operator and his assistants, should receive thorough aseptic treatment. Antiseptics play an all-important rôle under such

PLATE II.—Uterus exposed through the abdominal wound and ready to be incised. Three sutu
been introduced in the upper angle and the loops drawn out of the way

circumstances. The rest, such as the cleaning of the patient's body, changing of her clothes, of the bed, and cleansing of the room, may, in an emergency, be postponed until after the operation.

If the case comes under observation at a period of gestation which gives time for preparation, say from a few days, weeks or even a month or more, nothing should be left undone to render the patient and her surroundings the most favorable to success. It is my decided opinion that if she can be removed to a special hospital, one devoted to abdominal surgery, it should be done. A general, especially a public, hospital is to be avoided; unless it be provided with a building and an operating-room appointed and set apart for work of this kind. There can be no doubt that the chances for recovery are much better in special hospitals; but I would much prefer to operate at the patient's home, though the humblest in the world, rather than send her to a hospital filled with patients of every description and having but one operating-room.

The question of *premature delivery* is hardly to be considered here, since it is self-evident that if the patient can be safely delivered of a seven or eight months' child, this procedure should be adopted in preference to Cæsarean section.

As soon as it has been determined to perform hysterotomy, whether in a hospital or at the home of the patient, we should avail ourselves of every precaution insuring safety. Thus it will be well if the patient receive a daily vaginal douch (1:4000 solution of bichloride), a warm bath and a change of underwear, for several days prior to the operation. Saline cathartics are the best for the purpose of securing free and daily evacuations. Rectal injections of simply tepid water will assist to relieve the bowels of the contents. On the evening before, the abdomen, mons veneris and labia should be shaved and an abdominal binder with perineal pad, antiseptically prepared, should be applied. The bed which

she is to occupy after the operation should also be rendered absolutely clean. The bedstead must be taken apart and thoroughly scrubbed; the mattress and bed-clothes fumigated, then well aired; sheets and pillow-slips rendered aseptic and antiseptic by boiling and subsequent dipping into a 1:2000 bichloride solution before drying. If in her own home, the same apartment may be used for bed and operating-room. This room is to be prepared as follows: If wall and ceilings are painted, they should be washed; if papered, wiped; if neither, white-washed or whitened. Windows and frames should also be washed, and the floor thoroughly scrubbed, and subsequently kept sprinkled with a 1:2000 bichloride solution.

The temperature of the room should be kept between 60° and 65° F., for at least twenty-four hours prior to, and between 70° and 75° during the operation. Personally, I prefer a temperature of between 80° and 85°, for the reason that the patient maintains her own temperature better, and in consequence of which breathing continues more regular, and the heart's action is less apt to fail.

The operator, his assistants and the nurse, should be strictly aseptic. This means a bath and clean clothes in the truest sense of the word. No other patients ought to be attended by them previous to the operation. Instruments, sponges, dressings and towels must be rendered aseptic, and again sterilized before using. Operating gown or jackets and aprons to be worn by the operator, assistants and nurse, should also be sterilized. An ordinary kitchen table properly cleaned and supplied with an aseptic blanket or comfort, pillow, rubber and linen sheet, is amply sufficient for the purpose of an operating-table. The patient should be dressed as "for the night." An undershirt and sleeping-gown is all she ought to wear.

On the morning of the operation no food is to be permitted except, perhaps, a small cup of very light coffee and a

small piece of toast. Some operators prohibit even this. Before or while the anæsthetic is administered, from $\frac{1}{8}$ to $\frac{1}{4}$ grain of codia or morphine may be given subcutaneously.

(1) Placed upon the table, her clothes are rolled up under her shoulders; the lower extremities are wrapped in warmed, clean blankets and, after the antiseptic abdominal dressing, worn by her during the previous night, has been removed, and her bladder emptied, towels wrung out in a warm bichloride solution are so placed across and along the sides of her body as to cover her clothes above, and the blankets below. The abdomen remains exposed to the operator. Of sterilized water, enough should be on hand for all purposes. The hands of the operator and assistants are best rendered aseptic by the method suggested by Howard Kelly.

(2) The choice of the anæsthetic is left to the operator. After ten years' experience in operative work, both as assistant and principal, I have come to the conclusion that, to begin anæsthesia with the use of chloroform, and, after the patient is unconscious, to continue with the A. C. E. mixture suggested by Reeve of Dayton, O., is very satisfactory. This followed up by a total abstinence from food and drink during the twenty-four hours following the operation, there will be but little, more often no, disturbance from vomiting.

(3) Instruments and other articles necessary for the operation may be briefly enumerated as follows: (*a*) An ordinary scapel and elbow scissors for the abdominal incision. (*c*) A groove director. (*d*) A tongue- and half a dozen hemostatic-forceps (less may answer the purpose). (*e*) Ligatures of different sizes (silver, silk, silkworm-gut or cat-gut. (*f*) Needle-holder. (*g*) Sponges (antiseptic gauze or cotton may take the place of sponges). (*h*) Rubber tourniquet to throw around the uterus before it is incised (not absolutely necessary). (*i*) Abdominal irrigator (may not be needed). (*j*) Iodoform powder; iodoform or antiseptic gauge for dressing abdominal wound. (*k*) Adhesive plaster. (*l*) Abdominal

bandage and perineal pad. (*m*) Hypodermic syringe and whisky or brandy for subcutaneous injections. (*n*) Hot water bags or bottles.

(4) An all-important question is: *What is the most favorable time for the operation?* Without entering into a discussion of the subject, and citing the different authors and their reasons for selecting either a period immediately before, during or after dilatation of the os, I will simply state that, to me, it appears that the most favorable moment for interference is when the os is sufficiently dilated to admit of a ready discharge of the lochia. If the operation is performed before this stage has been reached, the os will have to be dilated artificially. This must necessarily be deficient, to say nothing of the fact that it prolongs and complicates the operation. Still, there may be good reasons for operating earlier, as in the cases of convulsions, or hemorrhage due to placenta previa or malignant disease of the cervix; or later, as in cases where the contraction at the inlet suggests the possibility of spontaneous or forceps delivery. The various steps of the operation will be shown upon this manikin.

The *abdominal incision* is made directly in the median line, about six inches in length, commencing immediately above the umbilicus, and to be continued toward the symphysis-pubis. It is not absolutely necessary to make the cut directly through the linea-alba. Pean and Tait prefer to penetrate the peritoneal cavity just to one or the other side of it. They claim it is difficult to bring and hold in apposition the two peritoneal edges of the cut and, if we fail in this, hernia easily results as a consequence; this, they say, is obviated by entering to one side of the linea-alba. Their argument suggests itself as plausible. After the peritoneal cavity has been reached, the incision is best completed and elongated by the elbow-scissors.

If you expect to eventrate the uterus before incising it, a six inch abdominal opening will not suffice. But, eventration

PLATE III.—Shows the manner in which the delivery of the child and eventration of the uterus is effected.

of the uterus, prior to delivery of the child, does not commend itself; because it necessitates a very long abdominal incision; again, it is difficult to turn out the uterus even when the wound is eight inches in length, nor is there much to be gained by eventration of the organ at this stage of the operation. To prevent excessive hemorrhage it has been suggested, and practiced, that a rubber turniquet be thrown around the uterus so low down that no part of the fœtus may come within its grasp. The application of the turniquet requires the introduction of at least one hand into the peritoneal cavity. It is often difficult, and frequently impossible, to bring the turniquet into position and, after this is accomplished, its purpose may be defeated by that part of the fœtus which presents at the os, especially if the membranes have ruptured previously. For these reasons, and the loss of valuable time, the turniquet is not often employed by experienced operators. Hence, eventration of the uterus, as well as the application of the turniquet, may be safely omitted in the process of the operation. After all hemorrhage from the abdominal wound has been arrested, and three to four sutures introduced in the upper angle of the wound, the ends of which should be fixed by forceps and the loops withdrawn from the wound and retracted upwardly, the operator is ready for

The Uterine Incision.—The uterus, now exposed by the abdominal wound, is to be palpated with a view to determine whether or not the placenta is attached to the anterior uterine wall; if it is, the wall will feel thick, and the parts of the fœtus will not be so easily outlined as when the placenta is not situated in this region.

If only a section of the margin of the placenta be present, the incision should be made immediately outside of it. But when the placenta has its attachment more or less directly upon the anterior wall, the incision should be made as nearly as possible in the median line, and from above downward.

If the placenta is not present, this is easily done. The womb may first be punctured with a sharp pointed scalpel and the opening quickly enlarged with a blunt-pointed, curved bistoury. The hemorrhage which follows, though great, is not so excessive as one might think; but when the placenta has been so implanted that even its margin cannot be evaded, there is nothing to be done but to cut through both structures and deliver as quickly as possible.

The extraction of the child is best accomplished by taking hold of one or the other extremity of the child. Some writers have tried to lay down the rule: "Always deliver the head first." Experience has shown that this is not always practicable. In a vertex presentation, the hand of the operator would have to pass down over the head to lift it out of the wound. The instant the uterus has been opened and the hand introduced, it contracts, the amniotic fluid escapes and the cavity of the uterus, as well as the wound, rapidly diminish in size; so that, unless the head is promptly and easily liberated before this occurs, considerable force will be required to deliver in this manner; so much so, that there is great danger of increasing the length of the wound by rupture in a downward direction, an accident which ought to be avoided for self-evident reasons. When there is a large amount of liquor amnii in a vertex presentation, delivery of the head in advance may, perhaps, be free from difficulty; without it, or when the fluid has already drained off and the uterus is firmly contracted around the child, no risk should be incurred or time wasted in this direction, but delivery affected by the feet. In breech-presentations, especially dorso-posterior positions, the head readily finds its way out of the wound; not so, however, when the back of the child looks anteriorly, so that, for similar reasons it may here, likewise, be better to deliver by the feet.

The only apprehension in a footling Cæsarean delivery is that the uterus may contract around the neck of the child

before the head can be removed and thus the life of the child sacrificed before it is extracted. When we bear in mind this danger, the uterine opening may be quickly enlarged by scissors or a knife kept ready for the purpose. The same rules which guide us in the delivery of the after-coming head *per vias naturales*, should here be observed; the object of which is to throw the smallest diameters of the head across the passage. During delivery of the child, eventration of the uterus may be affected and the three sutures, previously introduced into the upper angle of the abdominal wound, closed by an assistant to prevent intestinal prolapse. The child delivered, the cord is tied in the ordinary way.

The removal of the placenta may be effected by simple traction upon the cord or, if adherent, the fingers may be introduced into the cavity and the organ separated from its attachment. The uterine cavity is then irrigated and dusted with iodoform powder.

Proper suturing of the uterine wound is, besides strict asepsis, the most important feature of success in this operation. It consists of bringing the wound together by both deep and superficial sutures. Silk, silver-wire and cat-gut may be employed for this purpose. Cat-gut, unless absolutely aseptically and antiseptically prepared, is dangerous for reasons evident to all experienced surgeons; silver-wire, because it cannot be absorbed, may become a source of irritation and annoyance; silk is, in the opinion of most operators, the most satisfactory, because it creates no irritation and it is only a question of time when it will be absorbed. The deep sutures should be passed, half an inch apart, through the peritoneal coat and the musculature only. The inner decidual surface must be avoided in every instance. The superficial sutures are passed between the deep sutures and grasp the peritoneal surface only, after the method of Lambert. The object to be attained is not only to bring the wound surface in close and exact opposition, but to cause its

peritoneal edges to dip down into the wound and thus secure a rapid union and prevent oozing from the uterine cavity. The uterus is now dropped back into the abdomen, which, if deemed necessary, may be irrigated with warm, boiled water. The abdominal incision is closed and the toilet made as in an ordinary ovariotomy. As a rule no drainage tube is needed. A hypodermic injection of the fluid extract of ergot is then made and the patient placed in bed.

The after-treatment is very simple: No food or drink during the first twenty-four hours. If food or stimulants are indicated, they should be administered per rectum; because, if introduced into the stomach, vomiting will probably ensue, and this should be avoided because of its tendency to disturb a favorable progress of the case. I know of no remedy, or precaution, which prevents or arrests the often very disturbing vomiting after an operation, than total abstinence from food and drink for a reasonable time after the operation. Opiates should never be given except for severe and continued pain. The bowels are to be acted upon promptly, if they do not move spontaneously after forty-eight hours. Saline cathartics are the best. The vagina is antiseptically irrigated three or four times daily during the first few days, and less often thereafter. If all "goes well," the abdominal wound need not be disturbed, nor the sutures removed until the seventh day after the operation.

In the presence of a body of medical men, most of whom are general practitioners, it is perhaps pardonable to have entered into every detail of the operation; and as many of the specialists and teachers in this department have never had occasion to see or perform the Cæsarean section, I have taken great pains and spared no expense or time to have a manikin constructed upon which this and other operations may be satisfactorily demonstrated for the benefit of students, practitioners and incipient specialists of obstetrics and gynecology. It is the only manikin of its kind manufactured in

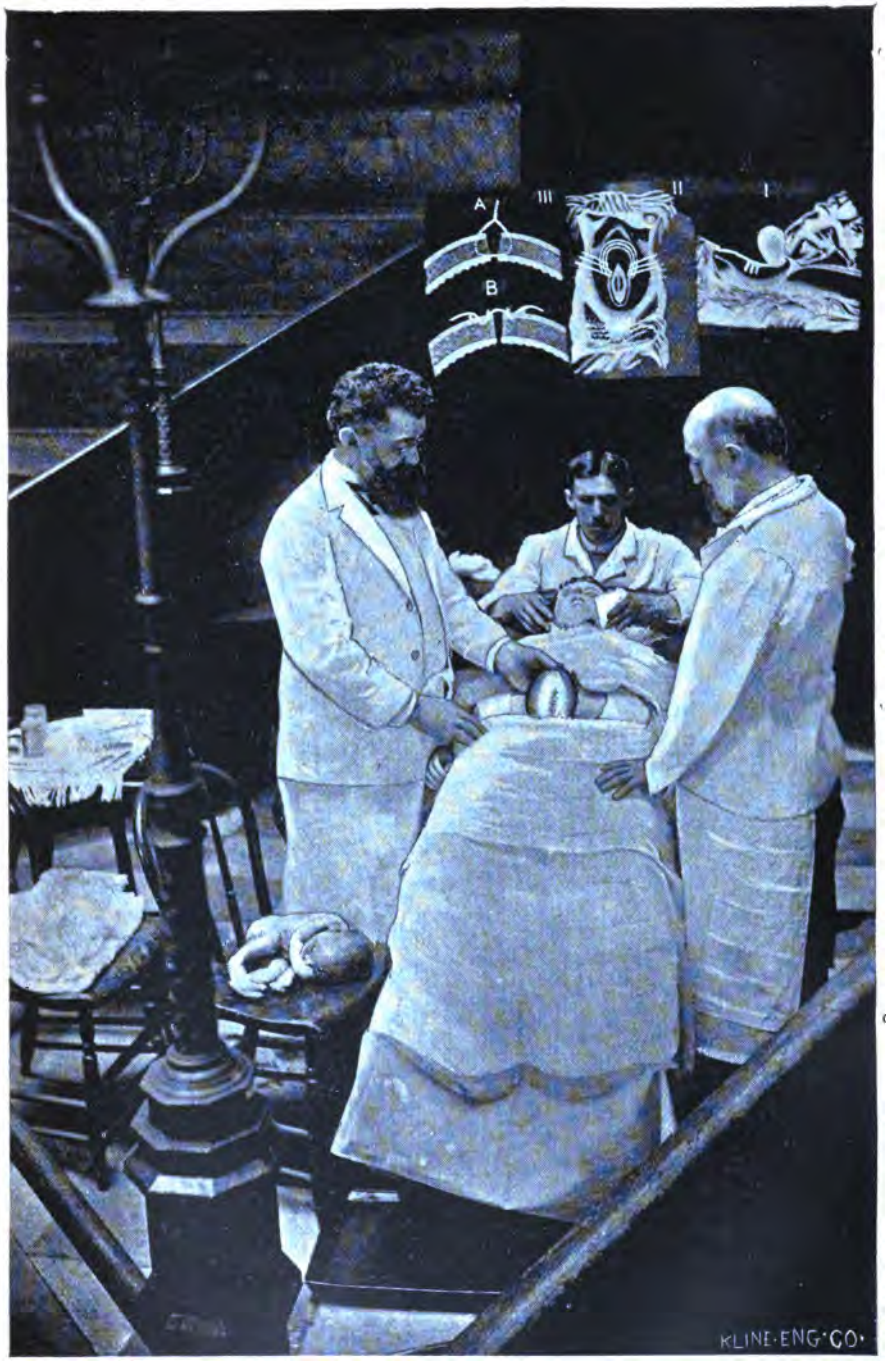

PLATE IV.—Both child and placenta having been delivered, the sutured and contracted uterus is ready to be dropped back into the abdominal cavity.

[The three figures seen upon the blackboard in the background show respectively: I. The simultaneous delivery of the child and eventration of the uterus, with abdominal sutures closed above the womb to prevent prolapse of the intestines. II. The abdominal incision with the three upper sutures introduced and drawn out of the way prior to the uterine incision. III. Shows the manner in which the uterine sutures are introduced. A, the deep, B, the superficial sutures.]

this country, and I do not hesitate to say that it is equal to the best manikin made abroad and in some respects even superior. Upon it the various capital, as well as minor, operations may be executed in a manner approaching real life. If the presentation of this manikin will be a help to the teachers of this branch of the profession, its mission will have been fulfilled and its author amply repaid for his trouble. To the firm of P. Goldsmith & Co., of Covington, Ky., who have manufactured this manikin, I wish to express my sincere thanks for the time and effort they have so patiently expended in its production. They are ready to supply any number of them now and will promptly fill all orders.

DISCUSSION.

DR. M. STAMM:

I would like to ask Dr. Zinke what he would do in a case where there was already septicæmia present?

About four years ago I was called to see a woman who, when I reached her, had been in labor six days. Her pains began on a Thursday afternoon, and I saw her on the next Wednesday afternoon. She had a temperarure of 103.5°; pulse 145; the child was living. The conjugate was about one and three-quarter inches. I saw immediately this was no case for embryotomy, therefore I decided to make a Cæsarean section. I had only my pocket case with me, two sponges, and a very little antiseptic material. I operated on her, and the operation passed off very nicely, but the woman died two days after the operation; the child lived for an hour. In this case the interior of the uterus presented an ashy grey color. Womb did not contract well after operation. Would it not have been better in this case to have made a Porro operation instead of a Sänger?

DR. D. TOD GILLIAM:

I think Dr. Zinke's paper was an admirable one, but I think he went a little too far. I am willing to admit that in the great majority of cases section is better than any other means we have, but there are cases in which I believe the old-fashioned craniotomy is better.

About three weeks ago I was called by a physician of our city to see a case, which I found to be a brow presentation.

The woman had been in labor a long time. I endeavored to change the presentation into a vertex or face, but was entirely unable to do so. I finally went to work and performed craniotomy. I had to take out the entire bony system of the head and face, and even then could not make much headway until I commenced on evisceration. Then I succeeded in delivering the child. The woman never had the least trouble after it. Under the circumstances I do not believe Cæsarean section would have been a safe operation, considering the fact that the waters had been drained off for a long time, that impaction of the head had occurred, and that some time would have been consumed in making everything aseptic.

DR. R. HARVEY REED:

There is one question that perhaps is in place here that has not been considered by either of the speakers, and that is where we have a case of labor in which the child cannot be born on account of hydrocephalus, or in a case where the child cannot be born on account of deformity of the pelvis, and where there is spina bifida. Under such circumstances it does not seem to me that in either case Cæsarean section would be in order, but that craniotomy would be the proper operation.

I call attention to that fact because I have had personal experience in two cases in which I performed craniotomy, where there was a very large head but very small pelvis, where the child was still living but had spina bifida. I felt that I was justified in performing craniotomy under those circumstances.

DR. ZINKE:

In answer to the remarks by the first speaker I would say that, under the circumstances, total extirpation of the uterus or a Porro operation, would have been preferable. Total extirpation of the uterus is accomplished more rapidly, and not attended with the discomfort caused by the presence of the stump in the abdominal wound. I think the days of the Porro operation are past, certainly very limited.

In the case related by the next speaker, much would depend as to whether the child was living or dead at the time the craniotomy was contemplated. In the majority of cases, brow presentations may be corrected with the aseptic hand in the pelvic cavity under the influence of chloroform. It is wonderful to what extent and with how much ease the presenting part and the uterus can be carried up to and above

the pelvic inlet, even after the uterus has contracted firmly around the child. Under the influence of total anæsthesia we can easily correct the position of the head, by grasping it firmly with the hand, flex it, rotate it into an occiput anterior, and then apply the forceps and deliver, after all, perhaps, a living child. Even if the child were dead I should prefer this method to craniotomy if the soft parts of the mother had not suffered too much, and the disproportion between head and parturient canal not too great. Under just such circumstances, having in addition a feeble pulse, and the vitality of the patient depressed, craniotomy involves more serious consequences than Cæsarean section, if *properly* performed. Serious hemorrhage may be avoided by the application of the rubber tourniquet, and if the soft parts have suffered too much, or if gangrene of the cervix has already set in, nothing can be gained by leaving the uterus or part of it; total extirpation is then the only procedure by which the mother's life may be saved, because it removes the diseased portion of the womb and admits of free drainage from the vagina.

In cases of hydrocephalus and exaggerated spina bifida the child's life is of no value. Nobody would question the propriety of embryotomy in instances of this kind even when the pelvic diameters are perfectly ample. But it is different where there is a moderate amount of contraction, or where the dystocia depends on the existence of unrecognized hydrocephalus. I maintain, it is not wise to wait until the soft parts of the woman have been so damaged that any operation will promise little or nothing. But when this extremity has been reached and the child dead, embryotomy does not improve the mother's chances as much as the modern Cæsarean section.

If the true statistics of embryotomy could be secured no one for a minute would question the propriety of the modern Cæsarean section under the above conditions. The dangers of hysterotomy have been reduced to small degree by Sänger's method and asepsis. Patients recover without the slightest elevation of temperature after this operation. Union of the wounds is obtained by first intention; complications (or even death) from shock and sepsis are practically unknown.

I was apprehensive that my statements would be misconstrued and the position, which I occupy upon this question, not appear sufficiently plain. I do not believe in, much less advise Cæsarean section, on trifling indication. My object

in bringing this subject before you was principally to define the merits of the operation, its sphere of utility, and to popularize the new method of performing it to a greater degree than it has attained up to this time and in this country. There is no doubt in my mind that, with the present method of performing Cæsarean section, no man is justified to perform embryotomy in any of its forms upon a living child, nor can there be any possible justification in idly waiting until the child's life has been sacrificed. When the child is found to be dead upon our arrival, then an embryotomy comes up for serious consideration; and if the pelvis be ample and its soft parts are not badly injured, it should be elected as the best and proper course. But in a pelvis contracted, even to a minor degree (three and one-half inches), with the soft structures extensively mutilated, hysterotomy is indicated whether the child be living or dead.

HERNIOTOMY.—TREPHINING FOR THE RELIEF OF EPILEPSY.

BY B. MERRILL RICKETTS, M.D., CINCINNATI.

CASE I.

Herniotomy.—The first case which I wish to present to the Society is that of a young man twenty-one years of age, a plumber by occupation. About January 6, while lifting a heavy weight, he noticed pain in the right inguinal region. He drove in the wagon several squares, and the pain became so severe that it was necessary for him to return to his place of business. He was brought into our private hospital and Dr. Edward Ricketts reduced the strangulation which had occurred.

On the day following I made a herniotomy. I decided in this operation to allow my stitches to remain and get granulation. This I did. Chloroform was used as an anæsthetic, and the young man made an uninterrupted recovery.

He was in the house three or four weeks. At the end of that time I sent him to his home. About six weeks from the time of the operation he noticed an enlargement on the left side. I was called to him and found that he had a hernia on the left side, which was not a complete hernia. I brought him in the house and made the operation on the left side. There was no history of him having had the hernia before the time that he noticed it during his convalescence from the first operation. I made the operation on the left side under the same circumstances as I did that on the right, and on the

second or third day we had the rise of temperature and all the indications of erysipelas. This being the first case of surgical erysipelas that I had ever seen, I felt very anxious as to the outcome. His temperature at one time went as high as 103.5°. I gave free drainage and used peroxide of hydrogen, and the temperature dropped and he got along very nicely. During this time we had an abscess of the scrotum, which was opened on two or three different occasions, and the amount of pus that came from this wound was wonderful. The cellular tissue in this locality made it very favorable for great destruction. About two weeks ago the last stitch on the right side came away. The two ligatures upon the left side still remain, so that I have, in the two operations, succeeded in getting union by granulation, that which is desired by a great many surgeons.

There is some difference of opinion as to the propriety of making this operation, there being some who believe that if the hernia should return at some future time the truss would be better borne if you get primary union. Among the twelve operations that I have made for hernia, I have made all of the various operations that have been described, but I am not satisfied as to the best way to make these operations. I have failed in one, that of a colored boy, about one year old, under the care of Dr. J. S. Caldwell, of this city. I would rather feel that I had made an error in the operation, than that operation is a failure in general. I most earnestly advocate the operation.

CASE II.

Trephining for the Relief of Epilepsy.—The second case which I now present to you is a young man between thirteen and fourteen years of age. Some years ago he was riding down hill on a sled and struck a horse car. He was struck over the left frontal region, and he had no unfavorable symptoms. When eight years of age he was run over by a wagon, the wheel passing over his head. At the age of ten or

eleven years he had peculiar symptoms. While working at the blackboard in school he would stop in the act, with the chalk in his hand, and so continue holding it, would turn his head and say it was raining, holding his hand in that one position. The teacher would tell him it was not raining, but he would insist upon it that it was, his hand remaining fixed. This spell would pass off, and he would resume his work where he had left off.

These symptoms were annoying to the father, and at the age of twelve he was put under the care of Dr. Robert Stewart and Dr. Phillip Zenner, of this city, the family physician stating that his belief was that nothing would do him any good but an operation. He gradually grew worse, until several weeks ago he had his first paroxysm, which came at night. They then called in the former physician, Dr. Dickinson, who advised a consultation, and I was called in to consult. Having been under the care of two such men as those to whom I have referred, I felt that there was nothing further to do in the way of medication, and I advised an operation, which was made on the 19th of April at his own home.

He had been having these spells occasionally at night-time, and so far as I could determine, they were not true epileptic convulsions; that is, he would occasionally have one which was believed to be a true epileptic convulsion. The night following the operation he had severel of these nervous paroxysms which were described to me, and which I am thoroughly convinced were not epileptic. He has had fewer of them since.

I was assisted in the operation by Drs. Langdon, J. W. Murphy, and Dickinson. The incision was made here (indicating the position) and three buttons of bone removed and the adjoining sections taken out with a chisel, so that we have here an area of about two and one-half inches laid bare. By putting a bandage around the head I made a bloodless operation, cutting down to the periosteum, which I divided

and dissected up. After the periosteum had been taken up from the point on the external table where there was a slight depression, the bleeding from this area was about three times as great as from any other place, showing that the bone was more spongy than the surrounding bone. After removing the periosteum I used the trephine and found nothing whatever to indicate any trouble before I came to the dura. It was decided to open up the dura, and an incision was made about an inch and one-half in length and I passed my finger around the arachnoid cavity to see if there were adhesions, getting as close to the longitudinal sinus as possible. I am not satisfied as to whether there were adhesions or not. At one point to the right and a little forward there was adhesion of the dura to the cranium, and there was a little point just to the right; but as to the other adhesions I am not sure.

I sewed up with cat-gut. In sewing up the dura I had a needle that was rather broad and I picked up one of the superficial veins of the brain. It contracted and pulled back, but fortunately it was the distal end. With little forceps I immediately picked up the other end and ligated it and gave drainage.

As to the question of drainage in these cases, if we sew up without drainage and should have pus, then we subject the patient to great risks. I think it is better to take our chances; leave the drainage tube in, and if we get pus all right. If not, we can take out the tube.

The operation has brought about gratifying results in a way, although they have not been as satisfactory as I would wish. In a case which I presented to the society a few years ago, having had ten, fifteen or twenty convulsions in a month before operation, I find that from the first of January to the fifth of April he had only nine. This patient has, however, disappeared, and it is supposed that he has committed suicide, as he has threatened several times to do this.

OBITUARY.

J. C. KENNEDY, M.D.

Dr. James Charles Kennedy was born on February 11, 1809, in Butler County, Pennyslvania. His father moved to Brown County, Ohio, in 1811, where he died in 1849. His ancestors on both sides fought in the war of the Revolution and were identified with the cause of the patriots.

Up to 1827 he worked on the farm. Then he taught school for one day, but finding that his talents did not lie in this direction he dismissed his scholars in the evening and ordered them not to return, on peril of their lives. In 1829 he began to read medicine with Dr. Edward Newton, of Felicity. In 1832 he began to practice medicine and remained there until 1854. He, in the mean time, graduated from the Ohio Medical College in 1838, after attending two courses of lectures. In 1847 he was elected to the Ohio Legislature and served one term.

He built up a wide-spread reputation as an expert on insanity, hearing legal cases bearing upon it in Ohio, Kentucky and other states. He wrote several articles on the subject, all of which were well received by the profession. "State of Kentucky vs. Thomas Buford," "State of Ohio vs. Cole," etc., are cases on record.

He was enthusiastic and devoted in his profession,

attending with great zeal by the bedsides of rich and poor. To cure was the warmest desire of his heart and pay day a very unimportant matter, and his medical service was largely supplimented by charitable gifts. As a natural consequence he was looked upon as a benefactor of the community.

In 1854 he removed to Batavia, where his medical practice and the beautiful life of good works went on till the time of his death.

He used the heroic treatment of typhoid fever until convinced in 1848 that it was unsuccessful, when he changed to a milder treatment which was eminently successful. He read a treatise on the subject, before the State Medical Society, which was warmly received.

He died in the year 1890 greatly beloved and regretted.

JAMES M. SOUTHARD, M.D.

The following is an address by Rev. W. A. Ferguson, March 18, 1891:

An eclipse in nature is a surprise and shock. If the sun at mid day is eclipsed, its hidden glory increases the mystery and sadness. Dr. Southard, though past the meridian of life, did not seem to be such, but by reason of his continued activity he appeared as a man in life's prime.

His life has been eclipsed and the community feels the mysterious shock. The mystery of it we cannot solve, but the words of the Great Healer are a comfort: "What I do, thou knowest, not now, but thou shalt know hereafter."

James M. Southard, M.D., was born in Adams County, Ohio, December 16, 1825, from which place with his parents removed to Licking County. He died March 16, 1891. Dr. Southard was married to Sarah Wintermute May 14, 1850, who died September 24, 1867. June 16, 1874, he was married to Mary E. Godard. After receiving his education he read medicine for a time with Dr. Waters, of Elizabethtown, and after that with Dr. Roe, of Newark, and then entered Starling Medical College, Columbus, O., from which he graduated with honors in 1854.

He located in Marysville, April, 1854, which has been for almost thirty-seven years the field of his medical practice. When he began his life-work in this community, the facilites for getting from point to

point were vastly different from what they are now. In the midst of his widely extended practice, when a few miles were a toilsome ride and when the hardships incidental to the newer period of this portion of the country, made the physician's life a trying one, his rugged physical constitution served him well. He was a man of sound body, and more than this, he had a sound mind in a sound body. He was well endowed by nature with the qualities of the physician. He loved his profession; his heart was in his work. When by reason of his success he could have retired from the cares of his position, his heart kept him at work. He died with his armor upon him. After the disease which ended his life had stricken him, he visited his patients with his accustomed care and concern; and when his strength was actually such as to forbid further exertion, he began to clothe himself to go to the relief of one of his patients.

Dr. Southard was a man of sound judgment. He knew disease well, and could weigh with great accuracy what would be the issue of its complications. Like Galen, whose disciple he was, he was a man of logical mind in his profession. Hence his conclusions as to a patient were seldom astray. It came to be widely understood that when Dr. Southard said there was hope, the result justified the prediction, and when he said a man would not recover, the result was usually accepted and the sad consequences realized. He was careful and watchful. He set himself as a guard about the serious patient. There are homes, we know not how many, the members of whose families have been taken through critical periods by him, who would warmly testify as to his great care, caution and

faithful vigilance. He was tender and sympathetic. Those who knew him best will remember how gentle and sympathetic he was in his care of them. So far as it was in his power, he took upon himself their sickness. He entered into their cases. He had their confidence. He was a candid physician. He never magnified and never diminished the character of the disease of his patients. He was likely to tell you, if you were not sick, but only indisposed, to wait a little, but when his skillful eye saw danger, he made thorough work and made no concealment. He was a physician of great social delicacy, and no man ever observed the proprieties of his profession more closely than he. He was marked for his discretion.

Dr. Southard was, moreover, an inspiring physician in the sick room. In the ordinary walks of life, he was a man of few words, but all knew there was a silent strength residing in his quiet nature. It was in the sick room where his demeanor charmed and inspired his patients, as the head of one of his families said a few days since, in lamenting his loss, "the moment he stepped within the door, we felt better." There was that about him as the good physician which inspired confidence, certainly a noble quality. This sprang from that which they saw in him of strength and candor and goodness of heart.

A long and useful career has closed of one of our best known, and one among our most prominent citizens.

As a physician the loss is peculiar. It is the loss of a *physician* you mourn to-day. The physician stands very near the family. The physician has a certain priestly character in the family. We commit to him

our hidden ailments. We look to the physician as the instrument of keeping our life, our life to which we so tenaciously cling, our life which is the song of our existence. We lean upon him; but he upon whom you have leaned had himself to yield to disease and death.

You will fondly cherish his name and virtues through long succeeding years.

There was erected a statue of gold and ivory at Epidaurus to Æsculapius, the god of medicine, and in the temples of Pergamos, Smyrna and Tricca in Thessaly, votive tablets were placed exhibiting the names of the persons he had cured and the diseases of which they had been healed. And in the temples of how many homes of this community and county, are names of those whom Dr. James M. Southard healed.

And there are statues better than ivory and gold erected in the affectionate memory of hearts and homes, upon which his kindly eye looked, and where his skillful and sympathetic hand ministered.

But he who was so skillful, vigilant, sympathetic, candid, hope-inspiring, must fall himself before the power of disease. The healer sleeps in death.

Upon the human healer you look in tears. Let us look away from the tearful and helpless world to the Divine Physician, "who healeth all our diseases," (Ps. 103) and by the taking of whose medicine, we can enter the family circle on high where sickness and death never enter.

M. D. McCANDLESS, M.D.

On the 18th of January Dr. McCandless was found dead in his sleigh on the road, the result of heart disease. He had left his office about an hour previous to the discovery to visit a patient, but never reached his intended destination.

At the time of his death he was supposed to have been fifty-two years of age. He was born at Great Bend, Indiana county, Pennsylvania. The early part of his life he spent at his parent's home conducting a limited mercantile business and there first developed the traits of an able financier which distinguished him later in life.

He served during the late war as lieutenent and afterward studied medicine at Jefferson and Medical Department of University of Michigan, from the former of which colleges he graduated in 1875. After having practiced in Bradford he came to this city in 1880, and being a man of imposing appearance, he soon established a fair practice. It was as a financier more than as a practitioner that he achieved fame, and at his death was reported to have been worth $100,000.

R. E. WHELAN, M.D.,
Sec'y Mahoning County Med. Society.
Youngstown, O.

A. W. ALCORN, M.D.

At a meeting of the Portage County Medical Society held in Dr. Smith's office on Thursday, November 5, 1891, the following resolutions on the death of Dr. A. W. Alcorn, were adopted:

WHEREAS, Dr. A. W. Alcorn has been removed by death from the active ranks of the Portage County Medical Society, we its members as a last tribute of respect and honor do hereby

Resolve: First — That as a citizen he was alive to his duties—responding to the Nation's call in its hour of peril; as a member of the Board of Education, church, bible, humane and temperence societies, he was always doing what he thought best for the interest of humanity.

Second — That as a co-worker in our society which he helped to organize in 1866, and of which he was an energetic, worthy member, he was prompt in his place, working for the advancement of legitimate medicine, and that as the best memento to his memory we will strive to emulate his virtures.

Third — That the community in which he lived has lost a friend who had its best interests at heart; his patrons, a kind, careful, sympathetic medical attendant.

Fourth — That in further testimony of our respect, we tender our heartfelt sympathy to his bereaved family, assuring them that we will cherish pleasant memories of his life and labors.

Fifth — That a copy of these resolutions be recorded with the minutes of the society, presented to his family and furnished in the village press for publication.

LIST OF MEMBERS,

WITH

POSTOFFICE ADDRESS AND LOCAL SOCIETY.

This list is more or less incomplete, owing to the fact that many members disregarded the postal card sent them requesting them to indicate in what local medical society they desired to be registered. Several secretaries of local societies failed to furnish a corrected list of their members, consequently some new names may be left out.

The names in *italics* are *active permanent members*. Those marked (*) have been members more than twenty years, and are exempt from payment of dues. Those marked (†) have deceased since last report.

Abbott, C. N.,	Cincinnati,	Acad. of Med. of Cin.
Abbott, Julius,	Bethel,	Clermont Co. Med. Soc.
Adams, E. P.,	Cincinnati,	Acad. of Med. of Cin.
Adams, P. N.,	Dayton,	MontgomeryCo. Med.Soc.
Agin, C. C.,	Cincinnati,	Cincinnati Med. Society.
Alban, S. H.,	Perrysville,	N. Cen. Ohio Med. Soc.
Albers, G. H.,	Cincinnati,	Cincinnati Med. Society.
Aldrich, D. B.,	Harbor,	Ashtabula Co. Med. Soc.
Aldrich, J. C.,	Cleveland,	Cuyahoga Co. Med. Soc.
Alcorn, A. W.,	Ravenna.	
Alff, Louis,	Piqua,	Piqua Soc. of Clin. Med.
Allan, J. R.,	Cincinnati,	Acad. of Med. of Cin.
Allard, L. D.,	Flat, Pike Co.,	Hempstead Co. Med. Soc.
**Allen, D. B.*,	West Liberty.	
Allen, Dudley P.,	Cleveland,	Cuyahoga Co. Med. Soc.
Allen, G. M.,	Cincinnati,	Cincinnati Med. Society.
Allen, H. B.,	Columbus,	Columbus Acad. of Med.
Allen H. P.,	Columbus,	Central Ohio Med. Soc.
Allen, S. E.,	Cincinnati,	Acad. of Med. of Cin.
†Alexandria, Jno.,	St. Claireville,	Belmont Co. Med. Soc.

Amidon, H. N.,	Geneva,	Ashtabula Co. Med. Soc.
Amidon, Rebecca S.,	Paynesville.	
Anderson, F. M.,	Newtonville,	Miami Valley Med. Soc.
Anderson, Geo.,	Lumberton,	Green Co. Med. Society.
Anderson, G. L.,	Andover,	Ashtabula Co. Med. Soc.
Anderson, H. M.,	Newtonville,	Clermont Co. Med. Soc.
Anderson, Jas.,	Salem.	
Anderson, J. N.,	Columbus,	Columbus Acad. of Med.
Anderson, W. S.,	Newtonville,	Miami Valley Med. Soc.
Anderson, W.V.,	Toledo,	N. W. Ohio Med. Society.
Andre, O. C.,	Piketon,	Hempstead Co. Med. Soc.
Andrews, J. H.,	Goshen,	Clermont Co. Med. Soc.
Applegate, F. C.,	Windham,	Portage Co. Med. Soc.
Archer, J. D.,	Holgate,	N. W. Ohio Med. Society.
Archer, J. R.,	North Baltimore,	N. W. Ohio Med. Society.
Aris, J. F.,	Toledo,	Toledo Med. Association.
Arms, C. C.,	Cleveland,	Cuyahoga Co. Med. Soc.
Armentrout, L. W.,	Belleville,	N. Cen. Ohio Med. Soc.
Asbury, T. B.,	Jerome.	
Ash, W. N.,	Toledo,	N. W. Ohio Med. Society.
Ashmun, G. C.,	Cleveland,	Cuyahoga Co. Med. Soc.
Ashburn, P. M.,	Batavia,	Clermont Co. Med. Soc.
Ashton, A. S.,	Piqua,	Piqua Soc. of Clin. Med.
Ashton, E.,	Lima,	N. W. Ohio Med. Society.
Averdick. J. A.,	Covington, Ky.,	Acad. of Med. of Cin.
Axline, C. Z.,	Fultonham.	
Ayers, S. C.,	Cincinnati,	Acad. of Med. of Cin.
Bacharach, F.,	Cincinnati,	Academy of Med. of Cin.
Bailey, V. M.,	Dayton,	Montgomery Co. Med. Soc.
Baily, J. F.,	Cincinnati,	Cincinnati Med. Society.
Baily, W. W.,	Cincinnati,	Cincinnati Med. Society.
Bain, F. D.,	Kenton,	N. W. Ohio Med. Soc.
Baker, A. R.,	Cleveland,	Cuyahoga Co. Med. Soc.
Baker, B. F.,	St. Paris,	Champaign Co. Med. Soc.
Baker, C.,	Cleveland,	Cuyahoga Co. Med. Soc.
Baker, Geo. G.,	Akron.	
Baker, J. P.,	Findlay,	Hancock Co. Med. Soc.
Baker, W. O.,	Louisville.	
Baldwin, F. J.,	Bluffton,	N. W. Ohio Med. Soc.
Baldwin, I. W.,	Yellow Springs,	Green Co. Med. Society.
Baldwin, J. F.,	Columbus,	Columbus Acad. of Med.
Baldwin, J. R.,	Bluffton,	Allen Co. Med. Society.
Baldridge, T. R.,	Cedarville,	Green Co. Med. Society.
Ballinger, J. B.,	Versailles.	
Bange, Theo.,	Cincinnati,	Cincinnati Med. Society.
Barbour, C. C.,	Cincinnati,	Academy of Med. of Cin.

Barnes, E. J.,	Hebron.	
Barnes, R. H.,	Youngstown,	Mahoning Co. Med. Soc.
Barns, T. S.,	Chillicothe.	
Barns, W. T.,	Fredricksburg.	
Barnhill, J. U.,	Columbus,	Columbus Acad. of Med.
Barr, R. L.,	Westminster,	Allen Co. Medical Society
Barrere, D. M.,	Dayton.	
Barrett, J. E.,	Wooster,	Wayne Co. Med. Society.
Bartholomew, —	Trenton,	Butler Co. Med. Society.
Bartley, J. M.,	Cincinnati,	Academy of Med. of Cin.
Barton, E. G.,	Westminster,	Allen Co. Med. Society.
Barton, T. J.,	Zanesville.	
Bates, F. L.,	Lima,	Allen Co. Med. Society.
**Battles, W. S.*,	Wooster,	Wayne Co. Med. Society.
Bauer, A. F.,	Cincinnati,	Cincinnati Med. Society.
Bauer, M. M.,	Lake.	
Baxter, S. A.,	Lima.	N. W. Ohio Med. Soc.
Beach, T. D.,	Catawba.	
Beaghler, A. C.,	Delphos,	N. W. Ohio Med. Soc.
Beard, H. C.,	Lucasville,	Hempstead Co. Med. Soc.
Beardsley, O. O.,	Ottawa,	N. W. Ohio Med. Soc.
Beardsley, C. E.,	Ottawa,	N. W. Ohio Med. Soc.
Beck, J. S.,	Dayton,	Montgomery Co. Med. Soc.
Becker, B.,	Toledo,	Toledo Med. Association.
Beckwith, S. W.,	Toledo,	N. W. Ohio Med. Soc.
Beebe, B. F.,	Cincinnati,	Academy of Med. of Cin.
**Beech, I. N.*,	West Jefferson,	Central Ohio Med. Soc.
Beeler, S. L.,	Hamilton,	Butler Co. Med. Society.
Beeman, P.,	Sidney,	Shelby Co. Med. Soc.
Beers, A. M.,	Newcomerstown,	Tuscarawas Co. Med. Soc.
Beeson, H. A.,	Leesburg,	Highland Co. Med. Soc.
Begg, W. H.,	Columbus Grove,	N. W. Ohio Med. Soc.
Bell, C. A.,	Cincinnati,	Academy of Med. of Cin.
Bell, W. H.,	Cincinnati,	Cincinnati Med. Society.
Belt, R. C.,	Milford,	Clermont Co. Med. Soc
Belt, W. A.,	Kenton,	N. W. Ohio Med. Soc.
Benner, C. T.,	Tiffin,	N. W. Ohio Med. Soc.
Bennett, C. A.,	Withamsville,	Clermont Co. Med. Soc.
Bennett, H. C.,	Lima,	Allen Co. Med. Society.
Bennett, J. G.,	Haselton,	Mahoning Co. Med. Soc.
Bennett, W. C.,	Iberia.	
Bennitt, J.,	Cleveland.	
Berlin, C.,	Wapakoneta,	N. W. Ohio Med. Soc.
Berry, J. E.,	Columbus,	Central Ohio Med. Soc.
Bessey, M. J.,	Toledo,	Toledo Medical Assoc.
Bethauser, C. M.,	Columbus,	Columbus Acad. of Med.

Beverly, P. F.,	Columbus,	Central Ohio Med. Soc.
Birchard, A. D.,	Cincinnati,	Cincinnati Med. Society.
Bird, C. E.,	Dupont,	N. W. Ohio Med. Soc.
Bishop, L. N., Sr.,	Batavia,	Miami Valley Med. Soc.
Bishop, L. N., Jr.,	Loveland,	Lebanon Med. Society.
Bishop, L.W., Sr.,	Batavia,	Clermont Co. Med. Soc.
Bishop, L.W. Jr.,	Loveland,	Clermont Co. Med. Soc.
Bishop, N. W.,	Loveland,	Miami Valley Med. Soc.
Bishop, S. P.,	Delta,	N. W. Ohio Med. Soc.
Bivans, W. A.,	New Hope,	Brown Co. Med. Soc.
Blachley, H. H.,	Van Wert,	N. W. Ohio Med. Soc.
Black, F. M.,	Washington C.H.,	Fayette Co. Med. Soc.
Blackburn, A.M.,	Steubenville,	Jefferson Co. Med. Soc.
Blackford, J. M.,	Martin's Ferry,	Belmont Co. Med. Soc.
Blaine, H. G.,	Attica,	N. W. Ohio Med. Soc.
Blair, B. H.,	Loveland,	Lebanon Med. Society.
Blair, J. F.,	Linwood.	
Blake, F. W.,	Columbus,	Central Ohio Med. Soc.
Blake, W. H.,	Shadesville,	Central Ohio Med. Soc.
Blakely, G. W.,	Washington C.H.,	Fayette Co. Med. Soc.
Bland, J.,	Bucyrus,	N. W. Ohio Med. Soc.
Blau, J. H. M.,	Covington, Ky.,	Academy of Med. of Cin.
Bleile, A. M.,	Columbus.	
Blesch, P. S.,	Columbus,	Central Ohio Med. Soc.
Blizzard, J. W.,	Fort Recovery,	N. W. Ohio Med. Soc.
Bloomfield, J.,	Napoleon,	N. W. Ohio Med. Soc.
Bodmann, S. H.,	Toledo,	Toledo Med. Association.
Boerstler, G. W.,	Lancaster.	
Boggers, E. M.,	Washington C.H.,	Highland Co. Med. Soc.
Boggers, E. N.,	Washington C.H.,	Fayette Co. Med. Soc.
Boggs, Miss J.,	Cleveland,	Cuyahoga Co. Med. Soc.
Bogle, J. T.,	Cincinnati,	Academy of Med. of Cin.
Bolemann, F. C.,	Coldwater, Mich.	N. W. Ohio Med. Soc.
Boles, R. S.,	Shreve,	N. Cen. Ohio Med. Soc.
Bond, J. W.,	Toledo,	Toledo Med. Association.
Bonifield, C. L.,	Cincinnati,	Academy of Med. of Cin.
Bonner, Horace,	Dayton,	Montgomery Co.Med.Soc.
Boone, A.,	Jamton,	Montgomery Co.Med.Soc.
Boone, D. W.,	Bellaire,	Belmont Co. Med. Soc.
Boone, J. S.,	Powhattan,	Belmont Co. Med. Soc.
Booth, C. C.,	Youngstown,	Mahoning Co. Med. Soc.
Bowdish, R. C.,	Marion,	Marion Co. Med. Society.
Bowen, A. H.,	Columbus,	Central Ohio Med. Soc.
Bowen, G. W.,	Toledo,	N. W. Ohio Med. Soc.
Bower, F. J.,	Magadore,	Summit Co. Med. Soc.
Bowers, A. D.,	West Lodi,	N. W. Ohio Med. Soc.

Bowers, I. S.,	Perrysburg,	N. W. Ohio Med. Soc.
Bowers, S. W.,	Cincinnati,	Academy of Med. of Cin.
Boylan, A.,	Milford Centre.	
Boylan, Jos. E.,	Cincinnati,	Academy of Med. of Cin.
Bradley, Ed.,	Felicity,	Clermont Co. Med. Soc.
Bradley, J.,	St. Mary's,	N. W. Ohio Med. Soc.
Brady, M. B.,	Cincinnati,	Academy of Med. of Cin.
Bramble, D. D.,	Cincinnati,	Cincinnati Med. Society.
Brandenburg, F.D.	Cleveland,	Cuyahoga Co. Med. Soc.
Brannon, T. H.,	Canal Dover,	Tuscarawas Co. Med. Soc.
Brashear, B. B.,	Cleveland,	Cuyahogo Co. Med. Soc.
Brayton, A.,	Carey,	N. W. Ohio Med. Soc.
Brayton, W. G.,	Arcadia,	Hancock Co. Med. Soc.
Brent, C. P.,	Cincinnati,	Toledo Medical Society.
Brewer, L. A.,	Toledo,	Toledo Medical Society.
Brewington, W.J.,	St. Mary's,	N. W. Ohio Med. Soc.
Bricker, J. W.,	Fostoria,	N. W. Ohio Med. Soc.
**Bricker, W. B.*,	Shelby,	N. W. Ohio Med. Society.
Briggs, C. J.,	Cochranton,	Marion Co. Med. Soc.
Briggs, E.,	Cuba,	Miami Valley Med. Soc.
Brigham, O. S.,	Toledo,	Toledo Med. Association.
**Brickerhoff, D. H.*,	Fremont,	N. W. Ohio Med. Soc.
Bozeman, H. E.,	New Alexandria,	Jefferson Co. Med. Soc.
Britton, S. H.,	Adelaide,	Marion Co. Med. Society.
Brocket, A. J.,	Cleveland.	
Brooks, M. L.,	Cleveland,	Cuyahogo Co. Med. Soc.
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Geyer, John,	Dayton,	Montgomery Co.Med.Soc.
Gibbon, H. B.,	Tiffin,	N. Cen. Ohio Med. Soc.
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Ginn, A. P.,	Fremont,	N. W. Ohio Med. Society.
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Glenn, C. C.,	Van Wert,	N. W. Ohio Med. Soc.
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Goddard, I. W.	Urbana,	Champaign Co. Med. Soc.
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Goeble, Anna M.,	Lima,	N. W. Ohio Med. Soc.
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Green, M. J.,	Woodstock,	Champaign Co. Med. Soc.
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Hoover, Albert,	Akron,	Summit Co. Med. Soc.
Hoover, C. C.,	Ross,	Butler Co. Med. Society.
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Hudgins, C. L.,	Portsmouth,	Hempstead Co. Med. Soc.
Hughes, —	Vermillion,	Bay City Med. Society.
Hughes, L. H.,	Dennison,	Tuscarawas Co. Med. Soc.
Hughes, M. A.,	Milan,	Erie Co. Med. Society.
Hughly, J. W.,	Good Hope,	Fayette Co. Med. Society.
Humbert, F.,	Mt. Liberty.	
Humiston, W.H.,	Cleveland,	Cuyahoga Co. Med. Soc.
Humphries, C.H.,	Dayton,	Montgomery Co. Med. Soc.
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Hunt, W. S.,	Terre Haute, Ind.	Champaign Co. Med. Soc.
Hunter, T. S.,	Ashland.	
Hurd, A.,	Findlay,	Hancock Co. Med. Soc.
Huston, C. W.,	Hamilton,	Butler Co. Med. Society.
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Jenkins, Wm.,	Diamond,	Portage Co. Med. Society.
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Wilkins, J. A.,	Delta,	N. W. Ohio Med. Soc.
Wilkinson, E. S.,	Van Wert,	N. W. Ohio Med. Soc.
Wilson, A. C.,	Youngstown,	Mahoning Co. Med. Soc.
Wilson, E. J.,	Columbus,	Columbus Acad. of Med.
Wilson, E. J.,	Mt. Vernon,	N. Cen. Ohio Med. Soc.
Wilson, D. C.,	Ironton.	
Wilson, J. R.,	Greenfield,	Higeland Co. Med. Soc.
Wilson, S. S.,	Xenia,	Green Co. Med. Society.
Wilson, S. R.,	Wabash,	N. W. Ohio Med. Soc.
Wilson, T. S.,	Findlay,	Hancock Co. Med. Soc.
Wilson, T. H.,	Dennison,	Tuscarawas Co. Med. Soc.
Wilson, W. H.,	Greenfield,	Highland Co. Med. Soc.
Wilson, W. P.,	Van Sue,	N. W. Ohio Med. Soc.
Winner, T. D.,	Cincinnati,	Academy of Med. of Cin.
Wire, G. W.,	Wilmington,	Miami Valley Med. Soc.
Wirt, W. E.,	Cleveland,	Cuyahoga Co. Med. Soc.
Wirth, R.,	Columbus,	Columbus Acad. of Med.
Wise, D. B.,	Mt. Eton.	
Wisner. A. P.,	Cleveland.	Cuyahoga Co. Med. Soc.
Witham, S. K.,	Mt. Carmel,	Clermont Co. Med. Soc.
Withrow, J. M.,	Cincinnati,	Academy of Med. of Cin.
Wolfe, A. C.,	Columbus,	Columbus Acad. of Med.
Wolfe, J. H.,	Kings Creek,	Champaign Co. Med. Soc.
Wolfstein, D. I.,	Cincinnati,	Academy of Med. of Cin.
Wolfenstein, J.,	Cleveland,	Cuyahoga Co. Me l. Soc.
Wood,	Lima,	Allen Co. Med. Soc.
Wood, J. S.	Collinwood.	
Wood, T. E.,	Rawson,	N. W. Ohio Med. Soc.
Wood, W. H..	Smithfield,	Jefferson Co. Med. Soc.
Woods, A. T.,	Loyal Oak,	Summit Co. Med. Soc.
Woods, J. K.,	Van Wert,	N. W. Ohio Med. Soc.
* *Woods, J. T.*,	Toledo,	N. W. Ohio Med. Soc.
* *Woods, D.* B.,	Warren.	
Woods, L. S.,	Rawson,	Hancock Co. Med. Soc.
Woods, W. F.,	New Breman,	N. Cen. Ohio Med. Soc.
Woodbridge, J. E.,	Youngstown,	Mahoning Co. Med. Soc.
* *Woodruff, L.*,	Elton,	Central Ohio Med. Soc.
Woodward, A. J.,	Cincinnati,	Cincinnati Med. Society.
Woodward, G.,	Oak Harbor,	N. W. Ohio Med. Soc.
Woodward, W. R.,	Cincinnati,	Academy of Med. of Cin.
Workmann, J. C.,	Uniontown,	Belmont Co. Med. Soc.
Wright, A. T.,	Springboro,	Lebanon Medical Society.
Wright, Emily,	Cincinnati,	Cincinnati Med. Society.
Wright, J. A.,	Toledo,	N. W. Ohio Med. Soc.

Wright, T. B.,	Circleville.	
Wright, J. M.,	Red Lion,	Lebanon Medical Society.
Wright, T. M.,	Troy.	
Wright, J. W.,	Columbus,	Central Ohio Med. Soc.
* *Wylie, A. N.,*	Ripley.	
Wylie, J. L.,	Ripley,	
Wright S. J.,	Tallmadge,	Summit Co. Med. Society.
Yingling, G. S.,	Tiffiin,	N. W. Ohio Med. Society.
Yocum, E. J.,	Wooster,	Wayne Co. Med. Society.
Yoder, S. S.,	Lima,	N. W. Ohio Med. Society.
Yost, W. H.,	Mt. Blanchard,	Hancock Co. Med. Soc.
Young, D. L.,	Cincinnati,	Academy of Med. of Cin.
Young, P. B.,	Crestline,	N. W. Ohio Med. Society.
Zenner, P.,	Cincinnati,	Academy of Med. of Cin.
Zeigler, H. H.,	Ayrsville,	N. W. Ohio Med. Society.
Zinke,	Cincinnati,	Academy of Med. of Cin.
Zopfi, J.,	Findlay,	Hancock Co. Med. Soc.
Zulch, G.	New Knoxville,	N. W. Ohio Med. Society.

NON-RESIDENT PERMANENT MEMBERS.

Campbell, W. A.	Colorado Springs, Col.	1888
Koogler, M. A.	Eldorado, Kansas.	1884
Ludington, H.	Omaha, Neb.	1871
Martin, G.	Adrian, Mich.	1877

HONORARY AND CORRESPONDING MEMBERS.

(*Deceased.)

Professor Ferdinand Hebra,* Vienna, Austria.
Professor Isidor Neumann, Vienna, Austria.
Professor Herman Wiederhofer, Vienna, Austria.
Professor Carl Sigmund,* Vienna, Austria.
Professor Herman Zeissel,* Vienna, Austria.
Professor Ed. C. Seaton,* Medical Inspector of the Privy Council, London, England.
Professor M. Jules Guerin,* Member Imperial Academy of Medicine, Paris, France.

HONORARY MEMBERS.

(*Deceased.)

*Awl, W. M.	Columbus	1872
*Bailey, M. J.	New York City	1852
*Baron, P.	Ravenna	1870
Bartholow, Roberts	Philadelphia, Pa.	1879
Beeman, —	Sidney	1872
Blackburn, J. C.	Covington, Ky.	1857
*Boerstler, G. W.	Lancaster	1865
*Brodie, William	Detroit, Mich.	1875
*Brower, J. H.	Lawrenceburg, Ind.	1854
*Childs, H. H.	Pittsfield, Mass.	1848
*Conant, H.	Maumee	1874
*Dalton, N.	Mineral Point, Wis.	1871
*Gundry, Richard	Catonsville, Md.	1879
*Guthrie, C. B.	New York City	1849
Harding, M. H.	Lawrenceburg, Ind.	1854
Haughton, R. E.	Richmond, Ind.	1863
*Hayes, I. I.	Philadelphia, Pa.	1857
*Hempstead, G. S. B.	Portsmouth	1872
Hibberd, James F.	Richmond, Ind.	1871
Hill, E. L.	Oxford	1856
*Hunt, S. P.	Richmond, Ind.	1866
Jenks, E. W.	Detroit, Mich.	1875
Kerr, John	Canton, China	1875
*Kirtland, Jared P.	Cleveland	1874
Kitchen, J. M.	Indianapolis, Ind.	1866
*Knight, J.	New Haven, Conn.	1849
*Lee, Charles A.	New York City	1848
Lyons, W. B.	Huntington, Ind.	1866
*McIlvaine, R. R.	New York City	1872
*Moe, L. W.	Ottawa	1876
*Mussey, R. D.	Cincinnati	1865
Noyes, J. F.	Detroit, Mich.	1875
*Parker, Willard	New York City	1852
Safford, E. D.	Parkersburg, W. Va.	1870
Senn, N.	Milwaukee, Wis.	1890
Steele, H. K.	Denver, Colo.	1872

Stevenson, J. M.	Pittsburgh, Pa.	1866
*Sutton, George	Aurora, Ind.	1854
Sutton, R. S.	Pittsburgh, Pa.	1884
*Thompson, Robert	Columbus	1865
*Trevitt, William	Columbus	1858
*Tully, William	New Haven, Conn.	1849
Vaughan, Victor C.	Ann Arbor, Mich.	1889

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